LIBRARY

FIRE ENGINEERING

A Consolidation of
FIRE AND WATER ENGINEERING *and* THE FIRE ENGINEER

DECEMBER 14, 1927

Our Heartiest
Congratulations
To
FIRE ENGINEERING

Upon its completion of Fifty Years of constructive service in the field of Fire-Fighting and Fire Prevention

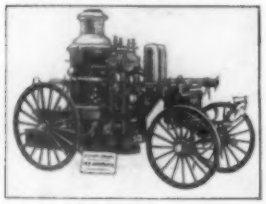
For more than 50 years "EUREKA" has been the standard of fire hose performance and quality.

EUREKA FIRE HOSE
MANUFACTURING COMPANY
50 Church St., New York City

ATLANTA BOSTON CHICAGO COLUMBUS DALLAS DENVER
DETROIT KANSAS CITY LOS ANGELES MINNEAPOLIS DES MOINES PHILADELPHIA
PORTLAND SYRACUSE

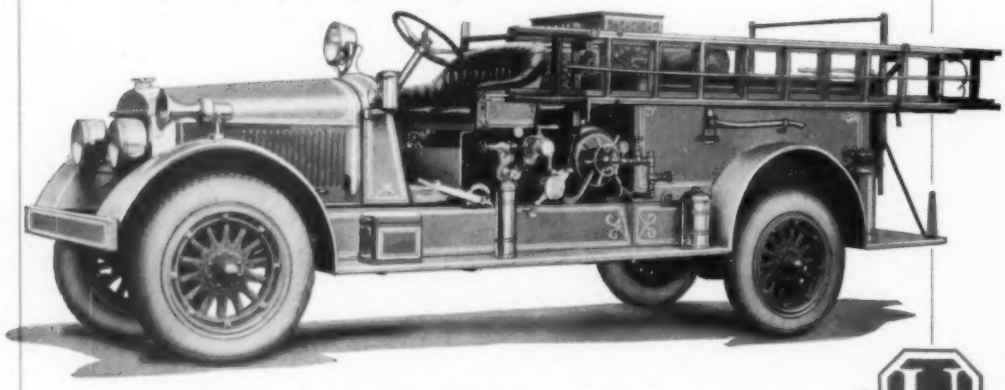
FIRE AND WATER

W. S. NOTT COMPANY
MANUFACTURERS
OF
STEAM FIRE ENGINES
Independent of any Trust or Combination



MINNEAPOLIS, U. S. A. MINNESOTA

Twenty-five years ago the Nott "Universal" Steam Fire Engine was nationally recognized as the fastest steaming boiler (140 lbs. of steam from cold water in six minutes) and the most efficient pumper then available for fire protection.
This advertisement appeared in Fire and Water way back in 1902.



And now in 1927, Nott's "Universal" All-Service Motor Pumping Engine is speeding ahead on its merits wherever the highest type of modern equipment is needed—at a reasonable price.

PROGRESS

ALMOST fifty years ago (in 1879) the W. S. Nott Company first offered its services to municipalities and fire departments of the country. Many ideas in equipment and many companies engaged in manufacture have come and gone in this half century. The W. S. Nott organization has continued to grow without interruption.
Through all the changes in fire fighting practise and equipment, the name "Nott" has never been connected with "cheap" apparatus. From the old steamer days right up to the present triumph of our "Universal" Motor Pumping Engine, we have always put the highest standards of quality above every other consideration. We desire to place our "Universal" where quality and dependability is appreciated. We invite you to study our specifications before you make your next purchase. May we send you our new catalogue and full particulars?

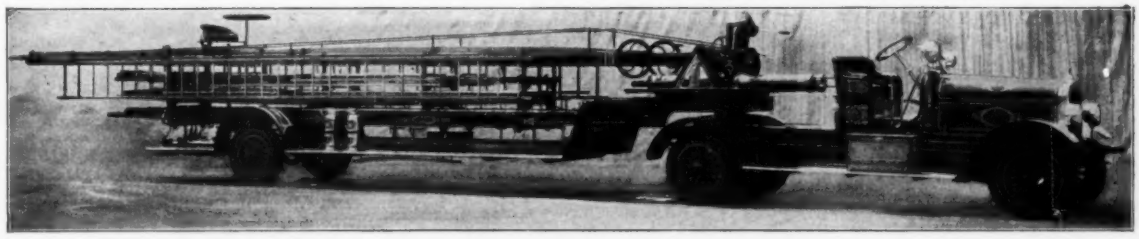
W.S.NOTT COMPANY
MINNEAPOLIS, MINN. ESTABLISHED 1879

fifty years of improvement -

This advertisement was the first to carry the fame of Seagrave apparatus to the public through the pages of this magazine. It was published almost fifty years ago.

SEAGRAVE & CO.
OUR NEW No. 9 OUTFIT.
Trussed Ladders and Trucks, one half the weight and three times stronger than old style makes.

FIFTY years—a half century in which there have been thousands of improvements in Seagrave apparatus. The new "No. 9 Outfit," shown above, is vastly different from the efficient, modern Seagrave Aerial Ladder Truck in the lower illustration—but in its day it represented the utmost in fire-fighting achievement. Through the years Seagrave apparatus has stood supreme.



The SEAGRAVE Corporation

COLUMBUS, OHIO

Branch Offices At:

Boston, Mass.
Seattle, Wash.
San Francisco, Cal.
Birmingham, Ala.
Chicago, Ill.
Dallas, Texas
Pittsburgh, Pa.
New Haven, Conn.
Philadelphia, Pa.
Los Angeles, Cal.
Kansas City, Mo.

The Journal of the Fire Protection Profession Since 1877

MEMBER
Audit Bureau of Circulations
Assoc. Business Papers, Inc.

FIRE ENGINEERING

A consolidation of FIRE AND WATER ENGINEERING *and* THE FIRE ENGINEER

Published Every Other Wednesday

SUBSCRIPTION PRICE
U. S. $3 a year; Canada $3.50
Foreign $4; Single copies, 25c.

Issued at Lyon Block, Albany, N. Y.
by CASE-SHEPPERD-MANN PUBLISHING CORP.
Also publishers of "Water Works Engineering," Technical Books, etc.

Executive, Editorial, Advertising and Subscription Offices,
225 West 34th Street, New York City
All communications, including Editorial, Advertising and Subscription, can be directed to either of the above addresses.

KARL M. MANN
President and Advertising Director

FRED SHEPPERD
Managing Editor

I. HERBERT CASE
Vice-Pres. and General Manager

H. S. ESSEX, Advertising Manager; ROBERT H. LOCKWOOD, Editor; N. N. WOLPERT, Asst. Editor

HAROLD T. MURRAY, Western Manager, 30 N. Michigan Ave., Chicago, Ill. Telephone: Franklin 0138

EDITORIAL ADVISORY BOARD

JOHN KENLON
Chief New York Fire Dept., Founder of New York Fire College

JOHN C. MORAN
Chief, Fire Department Hartford, Conn.

GEO. J. KUSS
Former Deputy Chief N. Y. F. D.; Lecturer on Fire Fighting, Delehanty Institute, N. Y.

A. A. BELL
Chief of Fire Brigades and Engineer "America Fore" Group of Fire Insurance Cos.

50th Anniversary Issue

Well, well, Well !!!
We certainly dont feel our age!

The Publishers

1877 - 1927

CONTENTS

DECEMBER 14, 1927

VOL. LXXX No. 25

Genesis of Modern Fire Apparatus (Illustrated) 1251
How Modern Apparatus Developed from English Engine.

Problems of Yesterday and Today (Illustrated) 1253
Problems of Today Were Also Important Fifty Years Ago.

Ventilation May Have Helped (Illustrated) 1257
Would Have Made Inside Operation Possible.

Selection and Care of Fire Apparatus, by Clarence Goldsmith (Portrait) 1259
Method of Deciding Upon Best Type for Municipality.

With the Editor 1263
Comments on Current Events and Live Topics by Our Editorial Staff.

Questions and Answers 1265
Replies to Questions on All Manner of Subjects of Fire Fighting and Fire Protection.

Recent Important Fires Specially Reported (Illustrated) 1267
Two Plants Destroyed in North Woburn, Mass.—Burnings of Two Weeks.

Industrial Plant Protection (Illustrated) 1269
Some Items of Interest to Industrial Plant Brigades.

Of Interest to Volunteer Fire Department (Illustrated) 1272
Matters of Importance to Volunteer Firemen.

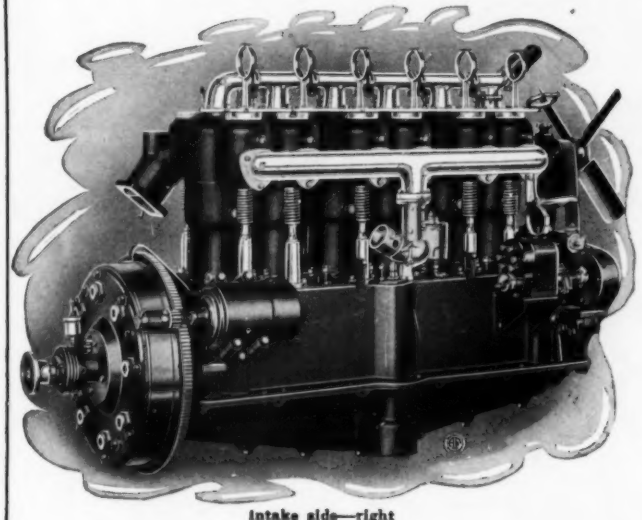
Fire Department Activities 1286
Newsy Notes from All Over the Country with Matters Firemanic.

Fire Department Improvements 1289
Record of Business Activities in the Fire Protection Field.

False Alarms 1290
The Humorous Side of the Fire Protection Profession.

Contents of this issue copyrighted, 1927, by Case-Shepperd-Mann Publishing Corp., 225 W. 34th St., New York City
Entered as second class matter at the Post Office, Albany, N. Y., January 29, 1926, under the Act of March 3, 1879.

Ahrens-Fox



Intake side—right

Super-Powered Motor

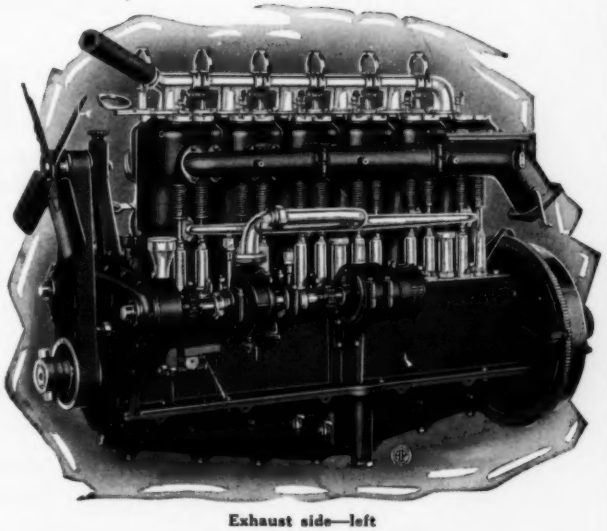
was Designed by Fire Engineers

"IT'S the motor that counts," is a phrase used by nearly all progressive fire officials. They realize that where a long run is called for and where you are forced to deliver hundreds of gallons of water per minute under high pressure—the brunt of the work falls upon the motor. It must not skip or fail —it must **deliver.**

The close contact of Ahrens-Fox engineers with actual fire service conditions and long experience in designing apparatus to meet these conditions thoroughly qualifies them to furnish municipalities with apparatus equipped with a motor of proven dependability and unquestioned service qualities.

Fire officials who realize the responsibilities of their positions and their duty of protecting the life and property of their town or city as far as humanly possible, know that quality and service are far more important than any other consideration. The cost of your apparatus is measured by service rendered over a long period of years, and not by the initial cost.

Hundreds of municipalities throughout the country who are fortunate in having such officials in charge of their fire departments are now equipped with Ahrens-Fox apparatus. Others are planning to make such purchases in the near future; and if you are interested in up-to-date fire apparatus we shall be glad to send complete information without obligating you in any way.



Exhaust side—left

"Nothing is too good for fire service, and nothing but the best will do."—Ahrens-Fox

The Ahrens-Fox Fire Engine Co.

"Builders of Quality Fire Apparatus"

Cincinnati

Eastern Representative
J. A. PRESCOTT
Fisk Bldg., New York

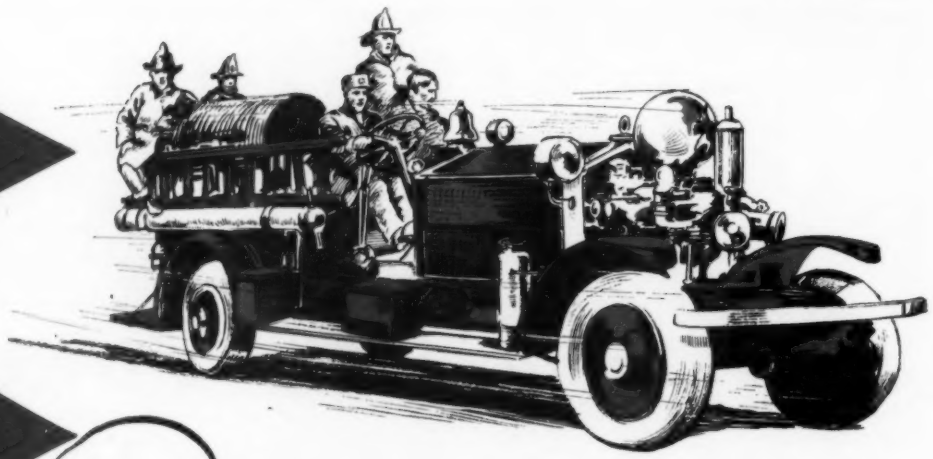
New England Representatives
CARLOW AUTO CO.
Taunton, Mass.

Chicago Representative
HENRY R. EARLY
Hotel Woodmere,
4641 Woodlawn Ave.

Southwestern Representative
PIONEER FIRE EQUIPMENT CO.
3600 Commerce St.
Dallas, Texas

California Representatives, PACIFIC FIRE EXTINGUISHER CO., San Francisco, Cal.
Canadian Representatives, THE BICKLE FIRE ENGINE CO., Woodstock, Ontario
Pacific Northwest Representatives, A. G. LONG CO., Portland, Ore.

1
2
3
4
5



Before you decide on the
FIRE HYDRANTS

Consider the Darling — ready to go into action *instantly* — day or night — year after year.

From intake connection to operating nut the Darling is *the* hydrant built to withstand present day usage. For plant, town or city, the *best* of fire protection is never too good. Officials responsible for the protection of that property can relieve themselves of many worries by installing Darling Fire Hydrants throughout. Here are ten good reasons:

DARLING

What a DARLING HYDRANT *will do*

1 *Deliver water to nozzles to the capacity of the line connected to Hydrant with no perceptible loss in pressure.*

Short opening thru valve seat and the extra large barrel delivers water to the nozzles at about the same pressure as in the main.

2 *Operate easily.*

Central operating valve rod with direct action on valve. No torsional friction and strain.

3 *Shut off effectively.*

Conical shape oak tanned sole leather valve having gradual closing on tapered bronze seat with no possibility of water hammer.

4 *Quickly and thoroughly drains water from barrel after hydrant is closed.*

All bronze, non-clogging, three-hole drain with automatic action and positive operation.

5 *Permits installing directly in water main.*

Hydrants can be equipped with tee type base when it is desired to install the hydrants in the water main.

6 *Prevent water escaping if barrel should be broken above valve.*

Compression type valve closing with the pressure.

7 *Readily conform to changes in installation conditions.*

Hydrant can be raised to any desired length by simply bolting an extension piece between barrel and base of hydrant. No other parts required.

8 *Withstand hard use.*

Extra heavy construction and all parts made from the best grade of virgin metals.

9 *Enables servicing at minimum cost.*

All parts, including seats, removed thru top of hydrant. No digging. Packing box and operating threads located in extreme top of hydrant and easily accessible for lubricating.

10 *Affords minimum installation cost.*

Not necessary to excavate below trench level to set hydrant as the waste water drain is located directly above the main valve.

6 7 8 9 10

DARLING VALVE AND MANUFACTURING CO.

Williamsport, Pa., U. S. A.

New York Chicago Oklahoma City Houston

FIRE HYDRANTS

Make SURE that your 1928 Budget INCLUDES H-H INHALATORS AND BURRELL All-Service GAS MASKS

Two essential requirements of every Fire Department today are the H-H INHALATOR—a Resuscitation Device, officially approved by the Association of Police and Fire Surgeons, and the Burrell ALL-SERVICE Gas Mask, officially approved by the United States Government.

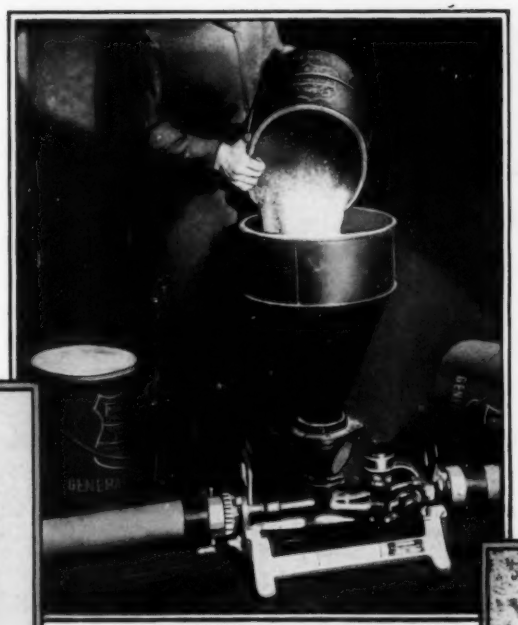
The H-H INHALATOR is an unusually successful Resuscitation Device for treating victims overcome by ***carbon monoxide, smoke, ammonia, fumes*** and ***gases,*** while the Burrell ALL-SERVICE Gas Mask is the only mask that will give complete protection against all poisonous gases, including ***carbon monoxide—the most deadly and treacherous gas encountered in fire fighting.***

We will be glad to arrange actual demonstrations without obligation. Meanwhile, include H-H INHALATORS and Burrell ALL SERVICE Gas Masks in your 1928 Budget.

Mine Safety Appliances Co.

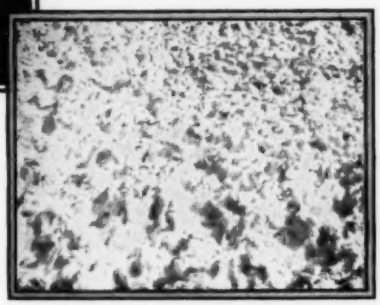
Braddock Ave & Thomas Blvd. Pittsburgh, Pa.

The patented container shown below keeps Foamite *Generator Powder in perfect condition. Strongly made and completely moisture-proof. Quickly and easily opened. Contents, 45 lbs.*



When Foamite *Generator Powder is poured into the* Foamite *Foam Generator, it instantly mixes with flowing water and produces a strong stream of genuine Firefoam. (The Generator hooks into any hose line.) The correct proportion of Powder to water is automatically regulated*

The foam obtained by the use of Foamite *Generator Powder is genuine Firefoam—tough, upstanding, heat-resisting. It quickly smothers fire and prevents reignition*



A single powder that produces genuine Firefoam

AN exclusive, patented process enables us to combine in *Foamite* Generator Powder all the chemical elements necessary for the production of genuine, high-quality Firefoam.

The operating advantages of a single powder are obvious. One powder to handle instead of two. No doubtful mixing of powders in the hopper!

And this superior Powder *will not deteriorate*. After months of investigation and study, chemists and engineers of American La France and Foamite Corporation have succeeded in incorporating in this Powder a resistance to deterioration and to caking which generally occurs when the more simple but cruder and less reliable arrangements of ordinary mixtures of chemicals are used.

Tests have proved that *Foamite* Generator Powder will always pour out freely and mix perfectly with flowing water in the *Foamite* Foam Generator—forming the famous Firefoam that so quickly controls every type of fire.

Backed by the reputation for dependability which has made *Foamite* appliances standard equipment with eleven hundred Fire Departments!

* * *

American La France & Foamite Corporation, 382 Turner St., Utica, N. Y., Successors to American La France Fire Engine Co., Inc., and Foamite-Childs Corporation.

Foamite-Childs Protection

A Complete Engineering Service

Against Fire

Congratulations - - - Fire Engineering! on Your 50 Years of Service

THE GAMEWELL
FIRE ALARM TELEGRAPH COMPANY,
No. 8 Dey St., New York,
PROPRIETORS OF THE "OLD AND ONLY RELIABLE"
American Fire Alarm Telegraph.
IN SUCCESSFUL OPERATION FOR MORE THAN
A QUARTER OF A CENTURY.
THOROUGHLY TESTED AND APPROVED BY SOME NINETY OF THE LEADING CITIES IN THE UNITED STATES AND CANADAS.

This Company has absorbed and combined in one perfect whole the best features of all the original Fire Alarm Patents formerly owned by GAMEWELL and COMPANY, THE NATIONAL FIRE ALARM COMPANY and CHESTER, together with the numerous patented improvements thereon suggested by a long practical experience. Owning all their patents absolutely, with no royalties to pay, and the largest and most complete manufacturing facilities in the East, West, and on the Pacific Coast, they offer to all the old customers of GAMEWELL & CO., and to every city, town, village and manufactory in the country, the most perfect telegraphic protection from fire, and the simplest means for telegraphic communication as

GREAT REDUCTIONS FROM FORMER RATES.

Without waiving any of the rights secured to us by our patents, yet in view of the foregoing facts and the general shrinkage in values, we will furnish the best apparatus and work at prices which cannot fail to be satisfactory to our customers. We cordially invite correspondence from all parties interested in the subject, and especially those contemplating telegraphic protection from fire, or needing extensions of their present Fire Alarm Systems.

L. G. TILLOTSON, New York, President and Treasurer. JOS. KINSEY, Cincinnati, Ohio, 1st Vice-President.
CHAS. BELL, New York, 2d Vice-President. HENRY L. BRUNS, New York, Secretary.
J. N. GAMEWELL, New York, General Superintendent.
No. 8 DEY STREET, NEW YORK.

Full and detailed information given on application, personally, or by letter to the Headquarters of the Company.
Or to POST & CO., Cincinnati, Ohio, Agents for Central Division. 118 La Salle Street, Chicago, Ill., Agent for Western Division.
E. B. CHANDLER, GEO. S. LADD. 131 Sutter Street, San Francisco, Cal., Agent for Pacific Division.

An actual reproduction of the first Gamewell advertisement appearing in *The Fireman's Journal*, in 1879.

BACK in 1879, two years following the birth of *The Fireman's Journal*—the original *Fire Engineering*—the first Gamewell advertisement appeared in that publication. Since that time Gamewell advertisements have appeared regularly in *Fire Engineering*.

There is much in common between the Gamewell Company and *Fire Engineering*. Each was a pioneer in its field. Each is now a leader. We have traveled much of the same road together—hit the same bumps and the same smooth stretches.

Each has been an important factor in the other's growth. You have helped our growth directly, by keeping our name before the fire protection field and also indirectly by your contributions which have materially aided in raising this field to its present high plane. On the other hand we have contributed toward your growth by lending our support through the various stages of your development.

Therefore, as one with so much in common, we extend to you our heartiest congratulations on the rounding out of your 50 years' service in the fire protection field. At the same time we wish you every success for continued prosperity.

The Gamewell Company

Newton Upper Falls, Mass.

"A Box A Block"

FIRE ENGINEERING

(A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER)

The Journal of the Fire Protection Profession

VOLUME LXXX DECEMBER 14, 1927 NUMBER 25

Genesis of Modern Fire Apparatus

Ancient Romans Started Fire Department Work — How Modern Apparatus Developed From Famous Newsham Engine Made in England

"WHAT a stream! Fourteen-hundred gallons of water going through that nozzle a minute. They'll soon pump the reservoir dry."

And the hundreds that watched the modern fire apparatus deliver 1,400 gallons of water a minute with apparent ease, accepted the fact with the same matter-of-course air with which they accepted the radio-telephone and other startling inventions

Pump Used in Germany During the Sixteenth Century

or developments. Few indeed, gave a thought to the Newsham engine from which the modern equipment can be said to have developed, or to the ancient Romans who dreaded fire as much as the people in the twentieth century.

Whatever apparatus the ancients had appears to have been forgotten during the Middle Ages. A form of portable syringe was used for a long time to fight fires.

An engine was used in Germany about 1656 that, according to description, approached some of the modern apparatus. It is said to have forced a column of water one inch in diameter a height of eighty feet. About 1675, air vessels were used in connection with pump design.

Introduction of Fire Hose

In 1672, hose or leather tubes were used to convey water from the engines to the fire by John and Nicholas Van der Heide in Amsterdam. They made the tubes from leather in fifty-foot lengths with brass screws fitted to the ends.

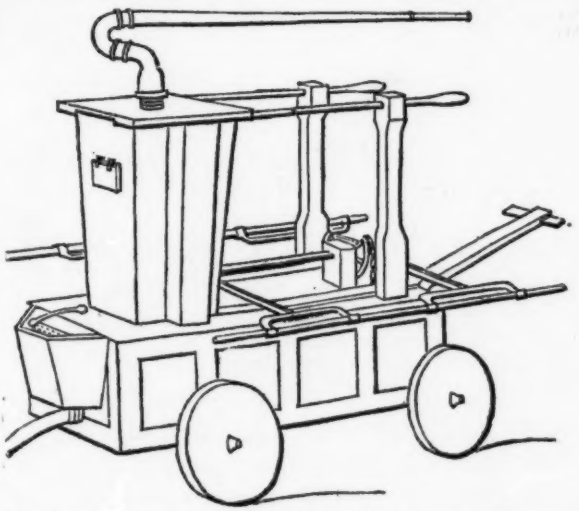
The introduction of hose prompted inventors to design an engine that would be able to supply itself with water instead of having men dumping buckets full of water into a reservoir. But that is getting ahead of the story.

The Newsham Engine of 1740

Early American relics will contain an application of the engine built by Richmond Newsham of London about 1740. It is perhaps best described by his own circular.

"Richmond Newsham of Cloth Faire, London, engineer, makes the most useful, substantial and convenient engines for quenching fires, which carries continual streams with great force. He hath play'd several of them at St. James's with so general an approbation that the largest was at the same time ordered for the use of the royal palace. And as a further encouragement (to prevent others from making the same sort or any imitation thereof), his majesty has since been graciously pleased to grant him his second letters patent for the better securing his property in this and several other inventions for raising water from one depth to any height required.

"The largest engine will go through a passage about three feet wide in complete working order without taking off or putting on anything, and may be worked with ten men in the said passage. One man can quickly and with ease move the largest size about in the compass it stands in, and is to be play'd without rocking upon any uneven ground, with hands and feet, or hands only, which can not be parallel'd by any other sort whatsoever. There is conveniency for about twenty men to apply their full strength, and yet reserve both ends of the cistern clear from incumberance, that others at the same time may be pouring in water, which drains through large copper strainers. The staves that are fixed through the leaves, along the sides of the engine for the men to work by, though very light, as alternate motions with quick returns require, yet will not spring and lose time the least, but the staves of such engine are wrought at the ends of the cistern will spring or break if they be of such length as is



Newsham Engine in 1740—Daddy of the American Pumper

necessary for a large engine, when a considerable power is appli'd and cannot be fix'd fast, because they must at all times be taken out before that engine can go through a passage.

"As to the treddles on which the men work with their feet, there is no method so powerful with the like velocity or quickness and more natural and safe for the men.

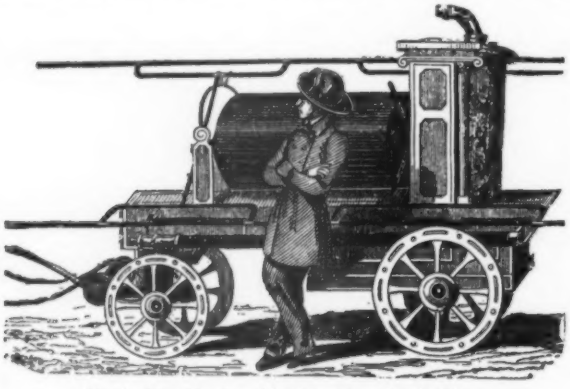
"Those with suction feed themselves with water from a canal,

pond, well, etc., by the turn of a cock without interrupting the stream."

One thing is certain. The modern fire apparatus salesman is modest compared to the phrasing of Newsham's circular.

Improvements to Newsham's Engine

Several improvements were made in English fire apparatus since the original design by Newsham. Up to about 1840 most of the changes were confined to the carriage and to details and



Early Fire Engine Used in New York City

arrangements of the various parts. Treddles were done away with and the carriages were made longer to accommodate a greater number of men.

Just prior to 1840 steam fire engines were introduced with some success in some parts of Europe. A small horizontal steam engine with its boiler being arranged on the carriage of the fire engine began to appear. One large pump cylinder was used and its piston and that of the steam cylinder were attached to the same rod. The steam cylinder of the Braithwaite machine, designed by a London engineer, was 7½ inches in diameter and the pump 6½ inches. Water was forced through a ⅞-inch nozzle for a height of ninety feet.

Early American Fire Service

It will be well to consider the early American department. Records of early New York, at the time of the Dutch in 1664, show that there were fire wardens. About 1648, ladders, hooks and buckets were ordered from Holland. Many of these ladders were purchased by fines paid by one with an unsafe chimney. "And in case the house of any person shall be burned, or be on

First Fire Engine Built by Latta in Cincinnati

fire, either through his own negligence or his own fire, he shall be mulcted in the penalty of twenty-five guilders to be appropriated as aforesaid."

After New Netherlands, or New York, became a British province, two of Newsham's engines were ordered from London about 1731. These were probably the first fire engines used on the continent.

In November, 1730, there appeared in the city's records, the following phrase:

"And be it ordained by the authority aforesaid, that forthwith provision be made for hooks, ladders and buckets, and fire engines to be kept in convenient places within the city for avoiding the peril of fire." Also that "this corporation do with all convenient speed procure two complete fire engines, with suction and all material thereunto belonging, for the public service; that the sizes thereof be the fourth and sixth sizes of Mr. Newsham's fire engines."

The apparatus arrived on December 14 and a committee was appointed to put the apparatus together.

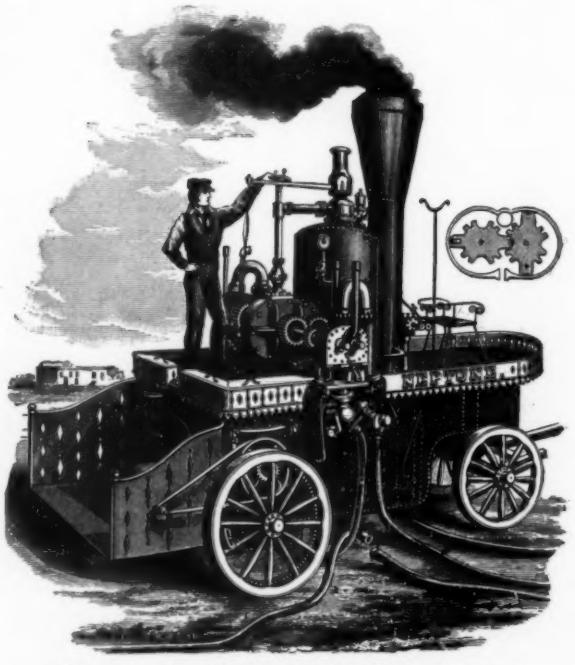
First New York Chief

Anthony Lamb was the first superintendent of fire engines. He was paid three pounds every three months.

The firemen of Colonial times were exempt from military duty and it is probable that from that practice developed the idea of exempting volunteer firemen from jury duty.

It is reasonable to suppose that the manufacture of fire engines in America started in Massachusetts at about the Revolutionary period. At that time, the colonists incensed over the taxation question, voted to stop importing many of the needed articles from England. It is possible that fire apparatus was on that list.

Several years after the Revolutionary War was ended, fire engines were made in New York and other cities. Although



Silsby Steam Fire Engine Built in 1856—First Type

small engines were used at first, about 1840 the manufacturers started to make the large machines. Hose became to be used extensively and fire buckets became obsolete.

The village engines were sometimes constructed with single cylinders and double acting, but they were not extensively used.

First Rotary Pump

Rotary engines were also made in some parts of New England on the principle of Bramah and Dickinson's pumps.

Very little changes had been made in American fire apparatus design up to this time. The engines used in Philadelphia resembled those made in France and Germany and the ones used in New York followed the Newsham design closely.

First Steam Fire Engine

The Mechanics' Institute of New York offered a gold medal in January, 1840, for the best plan of a steam fire engine. The publication of the notice was very limited and but two or three plans were sent in. John Ericsson, later on the designer of the battleship "Monitor," received the prize.

But this was not the first attempt to supersede hand engines before the advent of the steam fire engine. Zachary Breyl is said to be the first to attempt such a substitution. His idea was a

(*Continued on page* 1281)

Problems of Yesterday and Today

Study of Old Fire Association Conventions and Questions Submitted Indicate that Problems of Today Were Also Important Fifty Years Ago

"WHAT shall I talk about?" asks the one who has been approached to deliver a paper at some firemen's convention.

"I'll leave that entirely up to you," is the reply.

When the convention date draws near there appears on the program a paper by so and so which the author believes to be of an original nature. But a study of the problems discussed during the past fifty years indicate that with a possible change of application, the essentials remain the same. Firemen, in the preparation of material for the good of the service, find themselves limited to a certain scope of topics.

Fifty years is a mighty long time to be driving home a lesson. Noting the intense drives that are going on at the present time for fireproof construction, it is evident that the problem has not been changed since the following comment appeared in the Baltimore American in 1877:

"In spite of the terrible warnings that the American cities are constantly receiving as to the folly of erecting buildings of combustible material, they do not seem to profit by them.

"When a man owns a piece of ground, it seems hard, we think, that he should be dictated to as to the nature of the building to be erected upon it, that the thickness of the walls should be regulated and the class of material that he is to use, be prescribed. If he proposed erecting his house or factory on an open prairie there could be no objection raised. But so long as the interests of the others are likely to be jeopardized, his own personal advantages ought not to be considered and the plea of private rights should be of no avail."

In 1877 the experience of Miss Lydia German of Louisville, Ky., was considered of sufficient importance to deserve editorial comment. She was cleaning gloves with benzine when, due to the friction generated by the rubbing, the benzine caught on fire and burned the cleaner. Now, after fifty years of such discussion, such an item is still considered news. All the years of object lessons have not taught the housewife that such practice is dangerous.

Fifty years ago the Dwight Underwriters Survey and Protection Bureau of New York printed and distributed 100,000 cards on which was the phrase, "don't forget that neglect and carelessness are the cause for more fire than all other things." The only change that can be noted in present methods is that today we print many times that number of cards but the cause of fire remains the same.

Bicycles Declared a Nuisance

Chiefs today have an application of a condition that existed in the days of long ago. Chief Hosner of Lowell, Mass., read a paper before the Massachusetts State Firemen's Association convention and he strongly stressed the danger caused by bicyclists to the firemen. He said:

"Some of these riders in their desire to reach the fire before the department and all other riders, resort to what is called scorching. It is not only dangerous to the riders but endangers the pedestrians and members of the department. It is a dangerous nuisance and should be stopped."

By substituting the word automobile for bicycle, and racing for scorching, the statement still holds true today.

At a meeting of the Board of Directors of the International Association of Fire Engineers in 1899, it was suggested that among the topics to be discussed should be one on the importance of drill schools for the instruction of firemen in paid departments.

Today we have the problem of gasoline storage. In the days of yester-years, a paper on the storage of calcium carbide in bicycle stores brought forth considerable discussion. It was pointed out that cans of this material were even found in homes that had such vehicles. Today we find homes with several gallons of gasoline, that are even more dangerous, even though they are not intended for motors.

The paper on this hazard as presented by Inspector W. McDevitt of the Philadelphia fire insurance patrol was found to be so interesting that the I. A. F. E. assembled in Syracuse, N. Y., considered printing the paper in pamphlet form. Since FIRE AND WATER ENGINEERING printed the papers presented at the convention, the association voted to save the money and to disseminate the data through the publication.

The tax on foreign insurance companies is not a new problem. In 1877 the problem came up for serious discussion in New York state. Many organizations wanted to obtain some of these funds. The saner men advocated the placement of this revenue in the relief fund as a safeguard for the widows and children of deceased firemen.

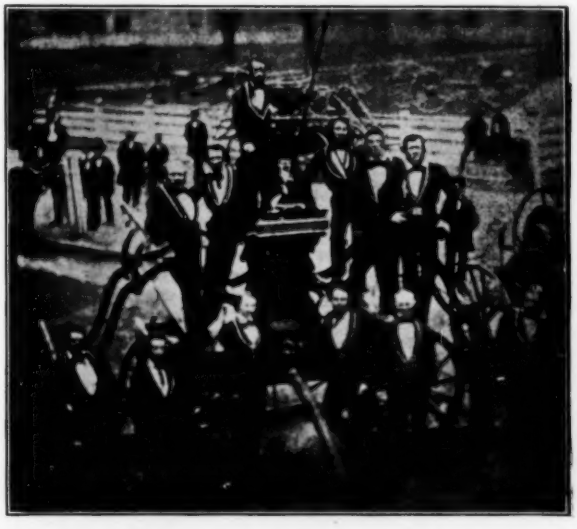
Two Per Cent Insurance Tax

At a convention of the New York State Firemen's Association held in Troy the same year a paper was read on "How can our fire insurance companies better protect their risks than by the payment of the two per cent tax on premiums for the benefit of the firemen who so faithfully worked to save the property on which the policies are held?"

The exhibit of Samuel Fastman of the deluge set proved very interesting to the New York firemen.

Brewery Fires and Explosions

One of the papers in 1887 commented on the unusual number of fire and explosions in breweries. As a convention topic, that might be considered as a trifle out of date for 1927. After describing a number of fires and explosions in the breweries, the article explained that ammonia vapor is inflammable and often



Volunteer Fire Company and Equipment of Newport, Ky., About 1890

explodes. Today we know that ammonia gas will explode and that it forms a very serious hazard.

It might be well to mention an amusing incident that happened in Warsaw, N. Y. A beer and hop factory operated there even though the town was a temperance place. A fire of supposedly incendiary origin broke out in the plant and when the firemen learned the nature of the fire, they refused to extinguish it. (But that was not today.—Ed.)

Topics at Massachusetts Firemen's Convention

At the eight annual convention of the Massachusetts State Firemen's Association, B. S. Flanders, superintendent of the fire alarm system at Boston, spoke on "the fire alarm, its advantages and benefits." That was fifty years ago. At the present time there are still many that apparently doubt the value of such a system.

Another topic was "Rubber Covers, Their Advantage for Protection of Property by Fires," by Captain H. W. Williamson, Worcester Fire Insurance Patrol.

Captain E. F. Martin of Boston spoke on "The Fire Losses of the Country, How to Prevent Them." Now the same topic is being discussed by men sent out from the various insurance rat-

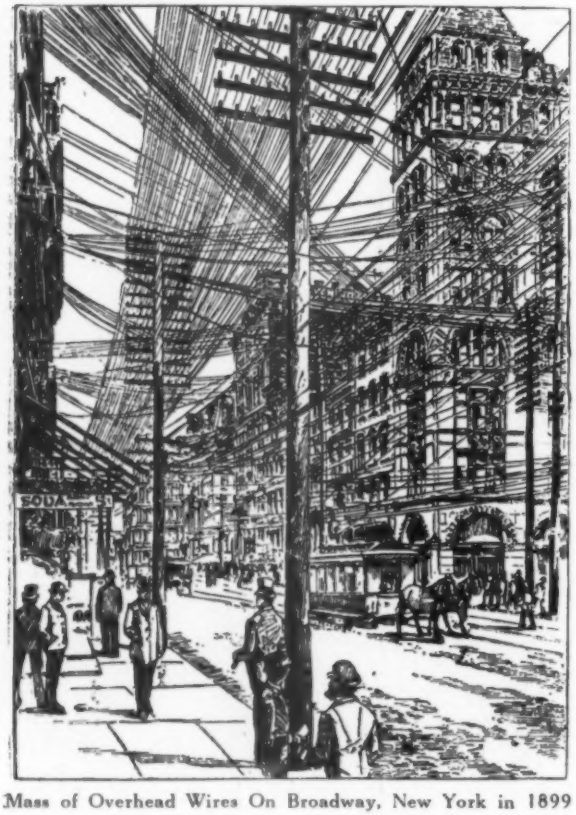
ing and inspection organizations throughout the country, and by fire chiefs during Fire Prevention Week.

Chief Fernow of the forestry division of the Department of Agriculture at Washington, D. C., made some very thoughtful recommendations in regard to the saving of the forests from destruction by fire. He estimated that the forest area of the country represents a capital of at least $280,000,000 and that loss from fire is about $8,000,000 a year.

Theatre Hazards

With the use of an asbestos curtain in the Academy of Music in Philadelphia in 1877, there was considerable discussion as to its value. But in an editorial, it was pointed out that perhaps of even greater importance to the safety of life, was an adequate number of exits and inflammable theatre construction.

During the past fifty years there have been a number of changes in theatre construction. Electric lights have succeeded the dangerous gas flames; the old winding wooden stairs in the rear of the stage are no more. But the problem of proper construction and a sufficient number of exits is just as modern a



Mass of Overhead Wires On Broadway, New York in 1899

topic. Newspaper accounts frequently tell of lives lost due to faulty exits.

Papers Presented in 1908

A study of the papers presented at the Columbus, Ohio, convention of the International Association of Fire Engineers is very interesting. Each of the topics brought before the chiefs in 1908 are just as current at the present time. It shows that times haven't changed—at least not as fire department problems are concerned.

Some of the papers at the time were, "The Proper Handling and Storage of Gasoline in Dry-Cleaning Establishments and Automobile Garages," "The Proper Distribution of Fire Alarm Boxes and the Best Method of Educating the Public to the Effective Use of Same." The matter of salvage work, which is very important at the present time, was discussed in a paper on "How Much Salvage Work Should be Done by the Fire Department in Cities Where There is no Regular Salvage Corps." There were other papers just as interesting.

Topics Before Pacific Chiefs

At a meeting of the Pacific Coast Fire Chiefs Association, David Campbell of Portland, Ore., who was later killed in action, delivered a paper on "Cheap Theatres." He spoke on the motion picture hazard in halls, and the paper brought forth interesting discussion. A paper was presented by Secretary Bringhurst in which he urged the adoption of the hose coupling recommended by the National Board of Fire Underwriters.

Chief Myers of Spokane, Wash., presented a paper on "Fire Drills and Fire Prevention in Schools." Chief Kingsley of Everett, Wash., explained how to fight fires in basements and sub-basements.

The hazard due to acids and explosive oils prompted some one to write an article on the subject. He described the various types of oils and explosives and described the resulting dangers. Explosives still form a serious fire hazard.

Firemen's Insurance

Chief Deasy of Nelson, B. C., advocated in 1909 that firemen be insured against accident. He spoke of the organization in British Columbia where the firemen were insured by the city council and where in addition the firemen have a relief association.

There are many more topics that were considered in the days gone by that are just as current today. Such topics as the use of dynamite at fire and whether the fire department or the insurance interests should maintain the salvage corps were all presented at various firemen's or fire chiefs conventions.

Perhaps the introduction of new inventions and a change in the method of living has changed certain methods in fire-fighting, but the problems before the various associations remain the same.

Chicago Has First 5-11 Fire

A fire causing a loss of about $350,000, accompanied with heavy explosions, destroyed a large pork packing plant housed in a brick building in Chicago on November 30, necessitating the sending in of the 5-11 call for the first time in the history of the local Fire Department. The building contained several tons of grease, which made such a hot fire that for some time the firemen were unable to approach the blaze near enough to efficiently fight it. The alarm brought all of the fire apparatus in the outlying districts to assist in fighting the fire.

The building was situated so as to be inaccessible, with approach by only one street, which greatly hampered the department.

Chicago Fire Patrol Opens Central Station

A new central station, which will house Patrols Nos. 1 and 2, was placed in service on December 1 by Chief Frank McAuliffe, Chief of Fire Insurance Patrols. The house is located at the southwest corner of Des Plaines and Monroe Streets, and is of brick, steel and concrete, two stories in height. Quarters for Chief McAuliffe and the headquarters staff are provided. The apparatus doors are equipped with Automatic Power Door Company's opening and closing devices.

Chief Ricker Host to Boston Men

Chief Eugene T. Ricker, of Biddeford, Me., entertained members of the Fort Hill Square Fire Station, Boston, Mass., at Biddeford on the night of Nov. 23. The Boston firemen made the trip to Maine by automobile and all report a wonderful time. Chief Ricker was assigned to Fort Hill Square while attending the drill school of the Boston Fire Department some months ago.

The Boston delegation was composed of Captain Thomas F. Flanagan, of Engine Company 25; Engineer Thomas Callahan, and Hosemen Thomas Flaherty, Hugh Shute, and Andrew Burns, and Chauffeur William Brooks; Lieutenant Thomas D. Brown, of Ladder Company No. 8; Chauffeur Michael E. Fallon, Laddermen Lawrence Doyle, John Angel, Edward J. Powers, and Richard Aylward, and George Gordon, mascot and "spark."

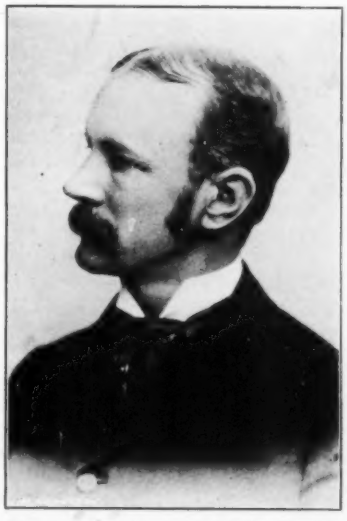
Upon arrival of the Boston firemen in Biddeford there was a parade to Saco led by the Biddeford Town Band. The Saco firemen marched back to Biddeford where a banquet and ball were held in the hall of the Pepperrell Manufacturing Company. A hose coupling contest was held, the Saco team winning by making four couplings in 10⅕ seconds. Mayor Precourt, of Biddeford, and Asst. Chief John L. Pendleton, of Saco, were among those attending. A trip to Biddeford Pool was the concluding feature of the party.

HARRY BELKNAP.

Our Fiftieth Birthday

Revolutionary Changes Have Taken Place in the Fire Field During Half Century; Early History of This Journal

NOVEMBER 17th, to be exact, marked the 50th birthday of FIRE ENGINEERING. Established in November, 1877, the first issue appeared on the 17th of that month. FIRE ENGINEERING has been issued continuously since then, though there has been four changes in name since its founding. What better could describe the genesis of this journal than the editorial announcement appearing in the November 17th issue of 1877? It is given in full below.



Portrait of the Late Frederick W. Shepperd as the Older Members Recall Him

"Our Paper

"It is with considerable diffidence that the editors of the *Fireman's Journal* enter upon the undertaking of providing for the Firemen of this country a weekly journal devoted to their interests exclusively. But we have been urged to embark in the enterprise by many veterans in the fire service, who, feeling the need of such a paper, and knowing that we have had much experience in fire matters and in writing thereon, have promised us their countenance, sympathy and support. In these days, when it is the habit to proclaim all newspapers as "Organs" of this or that political party or special business interest, we presume the *Journal* will be called the Fireman's "organ." If by that it is meant that it will watch over the interests of the Firemen in all sections of the country, and endeavor to keep them all informed of whatever occurs that is likely to be of interest or advantage to them, then we shall cheerfully consent to be termed an "organ." But if it shall be intended to convey the idea that the *Journal* is the tool of any clique or ring, for the promulgation of any particular ideas, or for the advancement of the special aims of any person or set of persons, then we most indignantly repudiate the term, for the *Journal* will never be an "organ" in any such objectionable sense.

"We commence the publication of the *Journal* because we believe such a paper is needed, and that, with due diligence on our part, it can be made profitable to ourselves as well as to the Firemen of the country, to whom we hope to be of some service. While striving to furnish entertaining matter for their perusal, and gathering the news and gossip of the different departments into one common receptacle, that all may read of what their neighbors are doing, we shall also discuss, from an independent standpoint, the many topics which are presented for the consideration of Firemen from time to time. Recognizing that the duties which they are called upon to discharge are among the gravest and most important that fall to the lot of any citizen, calling for the exercise of a high degree of intelligence, courage, skill, fortitude, perseverance and endurance, only to be found among the highest types of manhood, it shall be our aim to cheer them on in their noble work; to excite them to honorable rivalry; to impress upon them the bright examples of so many noble ones who have traveled the same path before them, and, to the extent of our ability, instruct them as to the best means of doing their work and bearing their burdens.

"Another important part of our mission, as we regard it, is that of addressing the general public in the interest of Firemen, and endeavoring to excite a better and more complete recognition of their services. We shall also address those in authority, by whose action the Firemen are provided with the ways and means for maintaining their organizations and performing the duties assigned to them. In these respects, with the cooperation and support of the Firemen themselves, we hope to accomplish some good in our way. With this foreshadowing of the course to be pursued by the *Journal*, we launch our enterprise, asking for it that forbearance which is, by courtesy, accorded to a 'first appearance.'"

Up-hill Work

The first ten years of the life of this journal were indeed the hardest. At that time trade journals and engineering magazines were few, and they had difficult sailing during the period in which it fell their task to demonstrate that there was a place in the publishing field for such journals.

The *National Fireman's Journal*, for such was the name of this publication from its inception until January 4, 1879 (when it changed its name to the *Fireman's Journal*) was no exception. Little advertising patronage, little organization in the fire field, together with the great predominance of volunteer departments made the survival of this journal difficult in the extreme.

But the founders determined they would "carry on," at least for a while, against overwhelming odds. A sudden change in its fortune, however, occurred early in 1886 when a man joined the *Fireman's Journal* who was destined to pilot it to success and influence. This man was the late Frederick W. Shepperd who took the helm when everything looked darkest.

It required but seven months for him to put the paper on its feet, and so prominently did the field of it appear to him that he arranged to secure conrol of the journal which he accomplished in November of the same year.

Immediately upon his securing control he changed the name to *Fire and Water*, fully appreciating the close relationship of the two fields of fire protection and water supply.

From this point on his personality showed out in every page and the continued growth of *Fire and Water* through the 33 years during which he was proprietor was a direct reflection of his thorough knowledge of the field as well as his untiring work.

Under his direction the journal took very definite stands on all of the problems designed to benefit the fire service. He, with but a handful of farsighted fire

department officials, came out strongly and fearlessly for any movement which he saw would ultimately benefit the field he served.

Through the co-operation of *Fire and Water* the International Association of Fire Engineers grew in strength and influence.

On January 2, 1904, *Fire and Water* changed its name to *Fire and Water Engineering*, to better dignify the professions of fire engineering and water works engineering which it served.

This name was retained until January of 1926 when *Fire and Water Engineering* was separated into two publications each serving its distinct field—FIRE ENGINEERING for the fire department field and *Water Works Engineering* for the water works field. This separation also included a consolidation of *The Fire Engineer*, the leading monthly fire journal, with FIRE ENGINEERING.

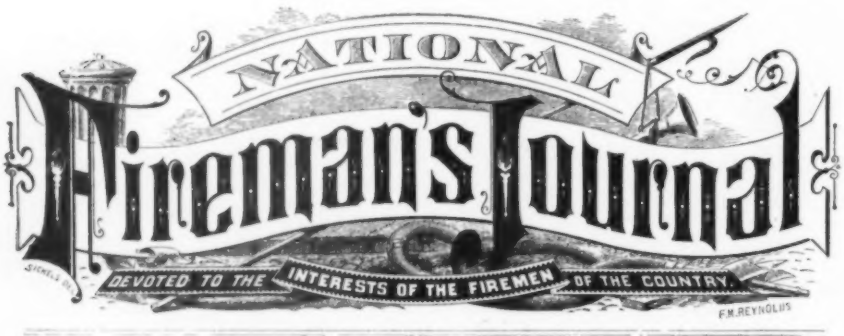
Due to failing health Mr. Shepperd severed his connections with the journal in November of 1918. He died in Brooklyn on February 8, 1921.

The present organization was formed in December of 1925.

During the 50 years covered by the life of FIRE ENGINEERING, and its predecessors, tremendous changes have taken place in the fire department field.

Paid departments have replaced volunteers, motor apparatus has replaced horse-drawn steam fire engines and other horse-drawn apparatus; tremendous progress has been made in the field of fire prevention, and, finally, the fire service has been improved from the angle of personnel as well.

Elsewhere in the pages of this issue will be found data outlining the changes in the fire service during the past 50 years.



VOL. I. No. 1. NEW YORK, SATURDAY, NOVEMBER 17, 1877. $2.00 PER ANNUM. SINGLE COPIES, 5 CENTS.

The Fire Last Night.

BY FLETA FORRESTER.

Ding! dong!
Ding! dong!
The alarm flashed over the wire:
The quick horses sprang
To their places, and—clang!
The steamers rolled off to the fire.

Fire! fire!
Fire! fire!
The heavens grew red with its light;
The sparks sifted down
O'er the slumbering town,
Asleep in the dead of the night.

Bright! light!
Bright! light!
The people they waked, they came
And some of them thought
That the world had caught,
When they saw that leaping flame.

Hist! hist!
Hist! hist!
The steamers they all worked hard
Till the flames grew dim,
And the sky grew dim,
As the fire and the water warred.

Ding! dong!
Ding! dong!
Came at last the signal toll,
And the people said,
By their change in tread,
"The fire is now under control."

Out! out!
And they wheeled about;
The last faint gleam was dead
And from smoke and damp;
With a hurrying tramp,
The world rolled back to bed.

Companion.

OLD VOLUNTEERS.

EIGHTEEN YEARS AGO.

THE LAST TRIENNIAL PARADE OF THE NEW YORK VOLUNTEERS.

There are hundreds of old fire vamps not only in the city of New York, but throughout the United States, who look back with no ordinary degree of pride to the palmy days of the Volunteers. Notwithstanding the ups and downs that they passed through while in active service, there were many pleasant re-unions, the recollections of which cannot but recall old friends, many of whom have "gone to that bourne from whence no traveler returns," while others are scattered over various sections of our country. We have therefore concluded to recall those many interesting events, some of which will appear in each number of the JOURNAL.

Among the rank and file of the old Department could be found statesmen, judges, bankers, and merchants; in fact, no Department in the world ever had so many prominent citizens. Thirty years ago one would have been looked upon as of little or no account if he did not belong to a Fire Company, and it was a pride to have hanging upon one's walls one of those neat little Fire certificates, executed by that veteran Fireman, Samuel Maverick. A Fireman's life, while it was then attended with many arduous duties, embraced many pleasant events, which are still fresh in the memory of hundreds of New Yorkers. Could the walls of old Tammany Hall (now the *Sun* building), the Apollo, or City Assembly Rooms, speak, they could "many a tail unfold" of such re-unions. All that now remains of the old Department is the mammoth silk banner, which hangs up in an old, dingy looking glass case, on the top floor of Fireman's Hall. It was the gift of the city, the presentation taking place on the occasion of the last triennial parade, over eighteen years ago. October 17, 1859. The gift was made in front of the City Hall, while the parade outdid any thing of the kind ever known in New York before. Full seven thousand men were in line, and such a display of fancy carriages, engines, and trucks was never witnessed. Full one hundred and fifty companies constituted the procession, the men all uniformed in red shirts. As early as six A. M. companies were out receiving guests from other cities; the banner presentation taking place at nine o'clock, in the presence of several companies and the officers of the Department, the Mayor, and Common Council. Among those that took part were such men as David Milliken, of Hose 40, and President of the Department; A. F. Ockenhausen, the great sugar merchant; Albert J. Delatour, of Wall Street; ex-Mayor Wm. H. Wickham, of Hook and Ladder 15; old Uncle Dave Theall (deceased); Robert McGinnis, now of the Building Bureau; James Baremore, Fire Commissioner; Tom Lawrance (deceased); John R. Platt, the glass merchant; ex-President Henry Wilson, of the Board of Fire Commissioners; the present Fire Commissioner, John J. Gorman; Robert C. Brown, Engine 8; Alonzo and Daniel Slote, Commissioner Edward Bronnell; R. P. H. Able, of Engine 28; Ralph Trembly; John Gillehan; President V. C. King, of the present department, and of old 23 Hose; John Carland; Henry A. Burr; William Haw, Jr.; Sam Thomson; ex-Chief Engineers, Uzziah W. Wenman, Alfred Carson, and James Gulick; Judge A. A. Philips, of Engine 40 (deceased); ex-Comptroller Matthew T. Brennan, of Engine 21, and his brother, Owen Brennan; ex-Sheriff Wm. Conner; ex-Coroner Robert Gamble, of Hook and Ladder 16; Samuel Conover, now President of the Produce Bank, then Foreman of Hose 38; A. P. Moriarity, the painter; John Creighton, and many others of note that we might name had we the space. Mayor Tiemann presented the banner, which was duly received by David Milliken. Harry Howard, Hook and Ladder 11, having been selected to carry the banner throughout the parade.

After the presentation, Columbia Engine 15 escorted the banner company to the line of march on Fifth Avenue. As it passed the companies a perfect ovation greeted it. In size it was the largest ever presented on the street, being full twenty feet in height, and requiring eight men to carry it. The veteran Harry Howard was then Chief Engineer; John H. Cregier and John Baulch, the latter now Chief Engineer of the Fire Department at Fortress Monroe, acting as chief aids. There were eleven Divisions, the First being under command of ex-Chief Engineer John Decker, which was composed of the following companies; Massachusetts Hook and Ladder, of Charleston, Mass.; Neptune Hose, of Newburg;

Here's the Front Cover of the First Issue of "The National Fireman's Journal" which, in 50 Years' Time, Developed Into the Present "Fire Engineering." The First Issue was Made Up of 12 Pages Which Size was Maintained for the Larger Part of the First Ten Years of Its Life.

How N. Y. F. D. Tests Its Hose

The following Special Order No. 206 of the New York Fire Department is interesting as illustrating the thoroughness with which the hose of the department is tested and the precautions taken to guard against injury to the men during such tests:

"Chiefs of Battalion shall direct Commanding Officers of companies in their battalions to test all 2½-inch and 3-inch hose in their possession, issued prior to January 1, 1924, at a pressure of 200 pounds. Chief Officers shall arrange time of test in each company so as not to conflict with companies in adjoining battalions in responding to first alarm assignments.

"All proper precautions will be taken to avoid accidents or injury to men. After hose is connected to engine and capped, members of the Department will not be allowed near it, except the Engineer of Steamer, until such time as the pressure is released by the Engineer.

"All burst hose will be marked at the pressure at which it burst and hung up in the tower until called for.

"The period of test will be for six days, beginning Wednesday, November 9, 1927. Reports of test shall be forwarded on Friday, November 18, 1927."

Vincentown, N. J., to Have New Apparatus—A four-tank chemical car will be purchased for Vincentown, N. J.

Downers Grove, Ill., Orders Apparatus—A Seagrave pumper and a hook and ladder truck have been ordered by Downers Grove, Ill.

Ventilation May Have Helped

Would Have Made Inside Operation Possible —Basement the Most Troublesome Point

THE fire described in the series on administration in the last issue of this journal was fought by a volunteer department composed of two companies, together with the assistance of a neighboring department having but a single hose and chemical truck.

No pumpers were required, nor were any available. Excellent water pressure made the use of hydrant streams practical.

The city in which this fire occurred has a population of approximately 10,000 and is located in the western part of the country.

The Fire Department

The fire department consists of one combination chemical and hose truck carrying 1,650 feet of hose and one combination chemical and hose truck carrying 1,150 feet of hose.

The department is, as noted above, volunteer, being made up of a chief, assistant chief, driver, fire marshal, and 10 volunteer firemen.

The department of the neighboring town which was called on to assist was made up of one hose and chemical truck company and seven volunteer firemen.

Any alarm in the business section of the city brings out the two companies.

Property Involved

The property involved and that immediately surrounding it is shown in the diagram herewith.

The fire building was one story in height, brick walls and with galvanized iron roof. The basement extended from the rear to a line about half way through the building. In other words the basement was about one-half the area of the building.

A billiard parlor occupied the larger portion of the floor while various shops made up the remainder as shown in the diagram.

This building was of what might be termed "pioneer" construction, being one of the first erected in the business section of the city. To the left of the fire building as shown in the diagram was a structure occupied by the West Side Fruit Company while to the right was a men's furnishing store.

Contents of Buildings

The contents of the billiard parlor were such as are usually found around establishments of this type. The occupancy of the cigar store, barber shop and restaurant were typical.

Towards the rear of the billiard parlor was a small work shop as indicated by the letter I. A stairway leading to the basement was located at the point indicated by J.

The Fire

The fire started on a warm fall night shortly after midnight. The billiard parlor and cigar stand were closed but a few minutes when the alarm was turned in by 'phone and also by a box located at the corner of 5th and Center Streets. Apparently the fire started in the basement or near the basement and this portion of the building was well involved by the time the department arrived. Fire apparently extended either beneath the floors or otherwise to the restaurant building.

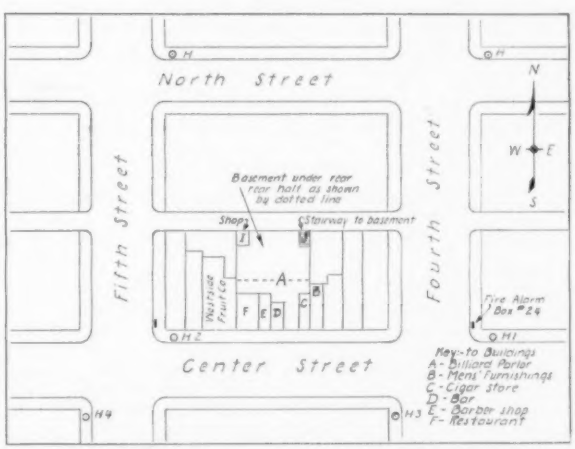
When the department arrived there was a great deal of smoke which made it hard for the volunteers to get in close to fight the fire at short range.

The fact that the floor over the basement gave way shortly after the arrival of the department would indicate that the fire had been burning for some little time in the basement.

How the Fire Was Fought

Upon receipt of the alarm the two hose and chemical companies responded along with the fire chief, the assistant chief, the driver and the fire marshal. Upon his arrival the chief ordered a line laid from hydrant No. 1 at 4th and Center Streets to the front of the fire building. A second line was ordered laid from hydrant No. 2 to the alley in the rear of the building. A third line was laid from hydrant No. 1 to the rear of the building.

Noting the seriousness of the situation a second



alarm was turned in calling out the South Side Volunteer Department which arrived with their equipment and laid a line from hydrant No. 3 to the front of the building.

In handling this fire the department worked entirely from the outside due to the presence of great quantities of smoke and heat within the building. This is the only possible change which might be suggested in the method of fighting the fire as followed by the local department. Had the building been ventilated thoroughly at the start it is possible that the department could have entered and operated on the fire in the basement of the building where it had made greatest headway. It was due to this fire in the basement that the entire building was involved.

The placement of lines as followed by the department in handling the blaze was satisfactory. But instead of operating from the outside, men should have opened up at once, both the roof, front and rear and gotten lines inside to wet down as quickly as possible. The large

open area made necessary the use of 1¼ inch nozzles. After the main body of the fire had been killed or dampened, lines should have been put in operation in the basement either by using cellar pipes (if such were available) or else by cutting holes in the floor and using ordinary streams. Removing two or three floor boards the length of the basement ceiling would permit the heat and smoke to escape from the basement while a line could be gotten in operation down the basement stairway.

Not having full details on this phase of the fire, it cannot be said with certainty that this procedure could have been followed under conditions as encountered. The fact that the fire was confined to the one building shows the department did good work with the facilities available.

To sum up, the suggested method of handling the fire, assuming that ventilation was possible, would have been as follows:

First company assign two men to the roof to open up; open doors front and rear; get lines in operation as quickly as men are available, using the placement followed by the department operating at this fire.

Wet down the fire in the main area—the billiard parlor—and then in other stores if it has reached them. The billiard parlor occupying the area just above the basement, there would be little danger of fire gaining great headway unnoticed. If the billiard parlor is properly covered with inside lines, and a line gotten in operation down the stairway, it is possible the fire may be held to the basement. All conditions as encountered seem to indicate that the fire originated in the basement. The fact that it was discovered with such headway immediately after the billiard parlor was closed for the night would show that it had been burning for some time unnoticed and the basement is about the only place it could have been so developing. As soon as the billiard parlor is properly covered with lines and fire wet down, then available men should be put to work removing boards in floor over basement to provide ventilation and also as a means of getting lines in operation.

As noted above, it is possible that by this method of procedure the fire could have been confined to the basement alone.

Box 4 Associates Present Cup

The Box 4 Associates, of Worcester, Mass., on November 26, presented a silver cup to Hose Company No. 2, of the Worcester Fire Department. The trophy was offered for efficiency in tests conducted at the time of the annual inspection of the Worcester department. Hose 2, by winning the cup for the third time, now has permanent possession.

Frank Marlowe, a member of the company, performed the "night quick hitch" test in seven and one-fifth seconds, thereby obtaining the cup for Hose 2.

President Otis C. White, of the Box 4 Associates, officiated at the presentation ceremonies which were held in the Posner Square fire station. Among those present were Chief Charles L. McCarthy, Robert E. Molt, state fire inspector; Supt. William H. Guertin, of the Worcester fire patrol; Morey F. Orrell, superintendent of fire alarms; Dr. George H. Hill, fire surgeon; Deputy Chief Henry Douglass, District Chief Hiram L. Jewell, District Chief Ernest E. Thurston, Captain William G. Johnston, and Captain Michael R. Whalen.

A chicken pie supper was served, followed by an illustrated talk on "Aviation" by M. W. Whittall and J. P. Whittall.

Chief Anderson, After 50 Year Record—Chief John Anderson of Keokuk, Ia., has rounded out forty-nine years in the service of the fire department, twenty-two of which he spent as chief of the department. He entered the fire service on November 8, 1878, and prior to that was a member of the volunteer fire organization.

Boston Station Nears Completion

The handsome new Central Fire Station located on Broadway between Washington Street and Shawmut Avenue, Boston, Mass., is nearing completion and is expected to be ready for occupancy soon after the first of the year.

This building has four double doors and will provide quarters for Engine Company No. 26, Engine Company No. 35, Rescue Company No. 1, Chief of Department, and Chief of District 5. It was authorized two years ago to replace the station on Mason Street which was demolished to make way for the new B. F. Keith Memorial Theatre.

An idea of how the structure will appear when finished can be gained from the accompanying picture which shows the new firehouse as it looks at the present time.

HARRY BELKNAP.

Outside of Station Completed

Fire Pictures Exhibited

On November 18, motion pictures of the Paris, France, and Tokio, Japan, fire departments were shown in the basement of the Fire Alarm Headquarters in The Fenway, Boston, Mass. Views of the New York fire department training school and of scenes at many large fires were also shown.

On the evening of November 19 the same pictures were shown in the hall on the top floor of the fire station of Combination A in Village Square, Brookline, Mass. Fire Commissioner Willard W. Estabrook and Chief Selden R. Allen, of Brookline, acted as hosts to the Box 52 Association of Boston on this occasion. Others who attended were Deputy Chief Albert J. Caulfield, Deputy Chief Henry J. Power, District Chief John F. McDonough, and Lieut. Charles H. McDonnell, of Boston, and Deputy Chief McDonald, of Brookline. Supt. J. Chester Bailey, of the Boston high pressure system, was also present.

HARRY BELKNAP.

Kimball Now Advertising Manager

Norman F. Kimball has just been appointed manager of advertising of the American-LaFrance and Foamite Corporation, a combination of the American-LaFrance Fire Engine Company and Foamite-Childs Corporation.

Mr. Kimball's experience in the fire protection engineering field covers about fifteen years, being successively assistant hydraulic engineer at Underwriters' Laboratories in Chicago, chief engineer of the former O. J. Childs Company, and assistant general sales manager of the Foamite-Childs Corporation. He will be in charge of all advertising and sales promotion.

Mr. Kimball is one of the few holding the engineering degree of fire protection engineeer having been conferred such a degree by the Armour Institute of Technology.

Boone, N. C., May Have Paid Fire Chief—Boone, N. C., is considering the employment of a paid fire chief. An order has been placed for new fire apparatus.

Stuyvesant Falls, O., to Have New Station—Ground has been broken in Stuyvesant Falls, Ohio, for the erection of a new fire station. Three cisterns will be dug in various parts of the village from which the department will be able to obtain water for the apparatus.

Croom, Ready to Instruct Wilmington, N. C., Firemen—J. L. Croom, who has spent some time in the New York Fire College, has returned to Wilmington, N. C., and will pass on the information that he has received while in New York. Classes will start as soon as the proposed drill tower is erected at the rear of fire headquarters.

Selection and Care of Fire Apparatus

Method of Deciding Upon Best Type for Municipality—Depends Upon Size and Nature of Buildings — Care of Equipment

By CLARENCE GOLDSMITH, Assistant Chief Engineer, National Board of Fire Underwriters, Chicago*

THE following paper contains some meaty material in connection both with the choice of the best suited type of apparatus for a particular fire department and as to the care and up-keep of the equipment after it has been acquired:

At the Thirty-ninth Annual Convention of the International Association of Fire Engineers, held at Milwaukee, Wisconsin, in 1911, it was voted to appoint a committee to formulate a definite plan for the testing of motor pumpers. This committee collaborated with the engineers of the National Board of Fire Underwriters and adopted what was then known as the "Endurance Test", but what is now commonly called the "Twelve-hour Test." This test consists of operating the pumper at capacity against 120 pounds net pressure for six hours, at one-half capacity against 200 pounds pressure for three hours, and at one-third capacity at 250 pounds pressure for three hours. Considerable credit is due this committee for its decision, for during the sixteen years which have intervened since that time and during which motor apparatus has been brought to its present degree of perfection, it has not been considered necessary or desirable to modify the requirements of this test. The National Board has assigned engineers to make such tests whenever they are requested by the manufacturers. The name and description of each pumper which successfully passes the test are bulletined to each of the several fire insurance rating organizations, and copies of such tests are sent to the manufacturer and to the purchaser, if requested.

Clarence Goldsmith

The Underwriters' Test

Most cities include in their contract and specifications that a pumper shall pass the three-hour acceptance test, which is commonly known as the "Underwriters' Test." This test consists of operating the pumper at its rated capacity against 120 pounds net pressure for two hours, at one-half its rated capacity against 200 pounds for thirty minutes, and at one-third its rated capacity at 250 pounds for thirty minutes. Such a test is made at the request of an official of the city which has purchased the apparatus. This test is made either by engineering representatives of the National Board or by the fire insurance rating bureau having jurisdiction, and no charge is made for this service.

These tests have had a very beneficial influence on the development of motor pumpers and there are few manufacturers in the field today who do not call for the twelve-hour test on new types and designs of pumpers which they manufacture or assemble, and they specify the three-hour acceptance test in their contracts.

Advantages of the Pumper

For service in towns and cities having populations in excess of 10,000, pumpers having capacities in excess of 700 gallons are best adapted to the requirements. Such apparatus must necessarily be adapted for the special service which it is called upon to perform, and the service record of such apparatus over a period of years clearly demonstrates that the equipment of special design and thorough construction is vastly superior to that made up of units of various manufacturers and assembled. Today this is hardly true of the pumpers of the lesser capacities. In the smaller communities the cost of a pumper is a very important item and many small towns cannot see their way clear to purchase a large specially-built piece of apparatus. This particular field has resulted in the development of assemblies made by numerous builders of various types of chassis and pumps. The smaller pumpers ordinarily range in capacity from 300 to 500 gallons, and many which have passed the twelve-hour test are excellent mechanical jobs and well adapted to the service which they are called upon to perform.

Where the Small Pumper has the Advantage

In the one- and two-company towns the small pumper has many distinct advantages over the large pumper. For about three-fourths the price of a large pumper, two small pumpers of from 300 to 400 gallons a minute capacity can be purchased. The engines of these pumpers are of common commercial design, generally being those found on truck and bus chassis, and are, therefore, more readily maintained and operated than the larger and more complicated engines on the larger pumpers. The total weight of the apparatus loaded is lighter and, therefore, better adapted for use on poor and muddy roads.

In a small town where one company is required, two of the smaller pumpers should be purchased and operated as one company. This provides added reliability, for with one pumper out of service on account of accident or repair, the department still has one piece of apparatus available for response. Where one or two paid men are employed, upon receipt of an alarm one piece of apparatus can start immediately for the fire, generally picking up two or three men en route, and the second piece can follow several minutes later with such of the call men or volunteers who have responded.

If each piece of apparatus carries about eight hundred feet of hose, this will place sixteen hundred feet of hose on the fire grounds. It frequently may be required to lay a long line to out-buildings from a hydrant located on the distribution system or from a nearby street. In case of a group of buildings where one is already completely involved, two chemical or water tanks are available to work on other exposed buildings. In no case, however, should one small pumper be considered equivalent to one large pumper.

* Excerpts from a paper read before the annual convention of the Ohio State Association of Fire Chiefs at Mansfield.

"PROPER maintenance of a pumper requires that it be tested at capacity at least once a year and preferably oftener, and certainly after any major repairs have been made. There is too much tinkering by mechanics and operators in the department."

In the purchase of apparatus consideration should be given to the standardization of equipment. If your department has one or more pieces of apparatus of one make, it is desirable to purchase the same make in the future for in this way the number of spare parts kept on hand can be kept at a minimum. The mechanics and operators in the department become more adept in the operation than if they were called upon to operate and maintain apparatus of several different makes. It also permits the ready transfer of drivers and operators from company to company without affecting the operation of the equipment. In any case, consideration should only be given to such pumpers as have successfully passed the twelve-hour test, and your contract should call for the conduct of the three-hour acceptance test upon delivery.

Further consideration should be given to the service records of the several makes of apparatus under consideration, and the financial responsibility of the manufacturers may well be investigated for it is very important that service be available during the life of the apparatus and that spare parts may be procured in the future when needed.

Ladder Equipment Necessary

In the smaller towns it is not generally economically possible to maintain a ladder company, however, a few ladders are always necessary. Regular hose wagon equipment calls for a 12-foot roof ladder and a 24-foot extension ladder. In addition to these, a number of cities are now carrying a standard 36-foot extension ladder on the pumpers responding into outlying territory. Such a ladder is almost a necessity in a small town and should be carried on one of the pumpers.

Relative Advantages of Chemical and Water Tanks

We are frequently asked regarding the relative merits of chemical tanks and water tanks. As a matter of fact, neither has the advantage over the other as an extinguishing medium although the gas formed in the chemical tanks is inert and if it were properly confined would blanket a fire. In actual practice it is dissipated from the chemical stream before it reaches the fire, and the only function which it performs is to develop the pressure in the tank to discharge the water through the chemical line and nozzle. The water tank has the advantage over a single chemical tank in that it can be replenished with a hose line or a bucket brigade, and a continuous stream can thus be maintained from a small hose line as long as water is available.

Keeping the Pumper in Condition

Proper maintenance of a pumper requires that it be tested at capacity at least once a year and preferably oftener, and certainly after any major repairs have been made. When the International Association of Fire Engineers prescribed 120 pounds net pressure for the capacity test it was had in mind that in the course of service the efficiency of the pump and the motor would drop off, and for this reason tests in service are made at capacity at 100 pounds pressure for twenty minutes and at 200 pounds pressure for ten minutes.

In the course of our investigations it has been found that the most common cause of pumpers not being able to deliver their capacity is the poor condition of the crank case oil. The piston rings in the engine of fire apparatus require about two one-thousandths of an inch more clearance than that for commercial motor vehicles and, therefore, due to the frequent starting of apparatus in the house, there is danger of its condition resulting in a rapid dilution of the crank case oil.

How Often Should the Engine be Started?

It is more or less of a debated question how often the engine should be started. It is believed that in general these tests are made at unnecessarily frequent intervals. If a piece of apparatus is left in proper condition, there is no particular reason why the engine should not start when it is needed. However, the film of oil on the working parts does not appear to remain in its proper state longer than forty-eight hours, and this should be about the interval between the times of starting the motor in order that the best results may be obtained.

Too Much Tinkering and Too Fast Driving

It is not an uncommon thing today for pleasure automobiles and trucks of the best manufacturer to operate 50,000 miles without any major repairs, yet pieces of motor fire apparatus which only travel from 500 to a maximum of 1,000 miles a year are generally thoroughly overhauled every year or two and few pieces of fire apparatus have seen over ten years' service. I believe there is too much tinkering done by the mechanics and operators in the department and perhaps improper driving may contribute slightly to its rapid deterioration.

Much of the fire apparatus in this country is driven too fast and without due caution. It is true that time is an important item, but it should not be given too much weight. During the year 1925, statistics show that more firemen's lives were lost going to fires than were lost in fighting fires. Let us analyze the question of time. From the time a fire starts, a varying and unknown length of time elapses before it is discovered. Then a certain amount of time is required to get the alarm to headquarters, depending upon the distance which the discoverer has to go to a fire alarm box or to a telephone. When the box is reached, only a few seconds elapse before the assigned companies are under way. When the telephone is used, a longer time elapses and under unfavorable conditions there may be a considerable delay.

In our high value districts apparatus is generally within three-fourths of a mile to a mile of the fire, and in outlying districts from two to three miles from the fire. In any case, only a minute or two can be saved whether the apparatus is driven at a rate of 25 miles an hour or 50 miles an hour. It is the opinion, however, of those who have made a careful study of the problem, and who are conservative in their idea, that the maximum speed should not exceed 35 miles an hour and that no definite rate of speed in any particular locality should be specified. If the driver is alert and careful he can drive at the maximum speed at which he always has the apparatus under such control that he can stop at the near curb line at the intersection of streets.

Pumpers necessarily have powerful engines to drive the pumps and well-drawn specifications require engines of at least 35 horsepower on hose wagons and ladder trucks. With engines of this size apparatus can be rapidly accelerated and also have sufficient power to maintain the desired speed through snow and over paved roads.

The Traffic Problem

The traffic problem is giving every department considerable concern. There appears to be no solution of the parking problem, but certain fundamental principles should govern the handling of moving vehicles. Uniform devices for notifying the public of approaching fire apparatus should be adopted so that in whatever city the automobile may be the driver will recognize the approach of fire apparatus. The best results are apparently obtained by installing both a bell and a siren, and their tones should be uniform throughout the country. Where possible, moving vehicles should draw toward the curb and stop, but beyond this no effort should be made to change the everyday customary flow of traffic for, if this is attempted, a traffic jam becomes inevitable. The setting aside of certain streets as fire lanes has been tried with more or less success, but this method

(Continued on page 1285)

An Old-Time Group of I. A. F. E. Notables

In the above group, reproduced from *Fire and Water Engineering* of May 8, 1907, and representing those present at the meeting of the Board of Directors of the International Association of Fire Engineers for that year, at Washington, D. C., consists of, L. to R., top row, Former Secretary James McFall, then Chief of Roanoke, Va., Fire Department; Chief H. F. Magee, Dallas, Tex. (since retired); Frederick W. Shepperd, Publisher, *Fire and Water Engineering* (deceased), and Chief T. W. Haney, Jacksonville, Fla. (since retired). Bottom row, Chief Filmore Tyson, Louisville, Ky. (since retired, and made Chief of Olds Motor Works); Chief G. W. Horton, Baltimore, Md. (deceased); Chief W. T. Belt, Washington, D. C. (deceased), and Chief G. M. Kellogg, Sioux City, Ia.

Gas Tank Blast Wrecks Big District

Huge Containers Go Up, Causing Widespread Destruction and Heavy Loss of Life in Pittsburgh—Cause Probably Workman's Torch

By WILLIAM E. PATTERSON, Bureau of Fire, Pittsburgh, Pa.

WITH a terrific flash and detonation, the shock of which was felt for a distance of over fifteen miles, a huge container of the Equitable Gas Company, of Pittsburgh, Pa., exploded from some undetermined cause on the morning of November 14, at 8.43 o'clock. The result of this blast was the most terrible disaster that has visited Pittsburgh since the explosion of a laboratory in the Alleghany Arsenal during Civil War times, on September 10, 1862. On the latter occasion some seventy-four persons were killed. The loss of life in this latest blast was twenty-eight, with the demolition or damaging of hundreds of buildings surrounding the wrecked plant.

At the time of the explosion the Riter Conley Manufacturing Company of Leetsdale, Pa., had twelve men making extensive repairs on the tank, which had been out of commission for a period of three months or more and at the time of the fatal blast was supposed to be empty. All of these employes were instantly killed when the blast took place.

Probable Cause of Explosion

Acetylene torches and electric welding devices were being used by the workmen for welding and patching. What really was the direct cause of the explosion may never be fully determined, but it is supposed that a spark from one of the torches being used by the workmen came in contact with an accumulation of gas in the tank, which had formed just the right combination with the air in the tank to cause the terrible explosion.

Shortly after the arrival of the first fire companies an acetylene tank used by the workmen making the repairs on the tank was found on the walk-around of the superstructure of the exploded tank, about forty feet from the ground, with the hose and burner blown off and a flame two feet long coming from the acetylene tank, mutely giving evidence of what caused the terrible destruction to human life and property. Battalion Chief Daniel Jones climbed a forty-five foot ladder and closed the shut-off valve on the tank, extinguishing the flame.

Bodies of Workmen Horribly Mutilated

The bodies of the unfortunate workmen killed in the blast were mutilated in a most horrible manner, the men working on the tank making the repairs being practically blown to pieces, arms, legs, hands and other parts of their bodies being scattered to the four winds, while others were crushed to death by falling walls and collapse of surrounding industrial plants and other buildings.

Large sections of boiler plate from the roof and sides of the exploded tank and sections of steel beams and columns from the steel superstructure surrounding the tank, weighing hundreds of pounds, torn and twisted into every imaginable shape, were hurled for a distance of several squares by the blast, pieces landing on the streets and sidewalks and crashing through buildings, while thousands of rivets torn from the tank showered the surrounding streets like rain.

Enormous Damage by Blast

Over eight hundred homes, according to a check-up made by the Equitable Gas Company, many including small business places with living quarters on the upper floors, located within the immediate explosion zone, were destroyed or more or less wrecked or damaged by the blast.

Practically every building in Pittsburgh's downtown and North Side business districts suffered a number of broken windows, the loss on plate glass in these downtown buildings alone being estimated at $200,000.

The explosion of the first tank was followed simultaneously by the explosion of the two remaining tanks, the sides of which were punctured and the top or roofs ripped off by the force of the blast.

Wrecking Crews Make Quick Clearance of Debris

Wrecking crews of the Baltimore and Ohio Railroad with the aid of two immense wrecking cranes performed quick work in clearing away the wreckage from the gas plant and the railroad right-of-way, the cranes lifting heavy sections of the tanks and superstructure and loading them on cars, which were hauled away by shifting engines, allowing the firemen and workmen to search for the dead. A number of bodies were found beneath the great mass of wreckage.

Section of Pittsburgh Damaged by Explosion of Gas Tanks, Showing Widespread Destruction Caused by the Blast

Catapillar army tractors from the 107th Pennsylvania Field Artillery were rushed to the scene and assisted in clearing the streets. A large number of heavy motor trucks were also used in hauling away the wreckage.

The results of the explosion were peculiar in respect to action on various buildings. In some cases, on brick buildings the face or outside course of bricks making up the wall was ripped out from the remaining course as though removed carefully by workmen, the remaining parts of the walls being left standing and intact, while in other instances whole walls were leveled to the ground.

Heavily constructed reinforced concrete industrial buildings and warehouses with metal window frames and sashes with wired glass windows suffered considerable damage, the metal

window frames and sashes being blown in and twisted into all shapes and the wired glass mashed into small particles, while many other buildings of the industrial class were crushed like egg shells by the terrific force of the blast.

A passenger train passing on the opposite side of the Ohio river enroute to the city had every window in the passenger coaches on the river side of the train broken, while the passengers were thrown from their seats. Trolley cars passing along West Carson Street, parallel with the Lake Erie Railroad, and cars crossing over the Point and Manchester bridges suffered in a like manner.

Flood Follows from Wrecked Gas Tank Reservoirs

Immediately following the blast water estimated at over 5,000,000 gallons gushed from the wrecked reservoirs of the

Close-Up View of Destroyed Gas Tank, Showing All that was Left After the Explosion

exploded tank, flowing down Reedsdale Street and over the railroad tracks towards the Ohio river, covering the stricken territory to a depth of three or four feet. A swirling torrent followed the line of a spur track leading to the Manchester Bridge and to the plant of the Union Paint Company and the city asphalt plant, where most of the casualties occurred. Firemen had to ford this stream, rushing like a mill race, in getting into service.

Following the blast all available hospital ambulances, police patrols, doctors and nurses that could be had were rushed to the scene of the disaster.

The new emergency squad wagon of the fire department made several trips to the hospitals with some of the injured as well as a trip to the county morgue with some of the dead.

Children in the stricken district on their way to school were in the path of the blast and were showered with glass, broken bricks and twisted pieces of metal. Some ran to their homes, only to find them a mass of ruins and their families groping about with blood stained faces seeking a means of escape.

Have to Chop Way Out of Fire Station

The quarters of Engine Company No. 47, Truck Company No. 47 and the chiefs of the Seventh Battalion located on Fulton Street at North Lincoln Avenue, just two squares from the scene of the explosion, a large two story brick and stone building, was damaged to the extent of several thousand dollars by the terrific blast. One result was that the large double folding doors in the front and rear of the apparatus room were so badly shaken and jarred out of place that it was with much difficulty that the firemen succeeded in getting out of quarters with their apparatus and on their way to the scene of the blast, the firemen practically having to chop their way out of the fire station.

Fire Captain Injured in Quarters

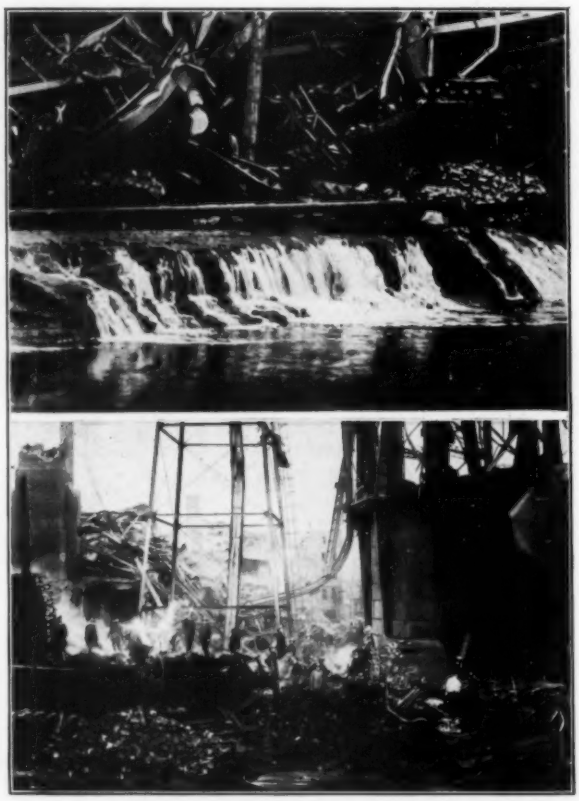
The day shift of firemen had just gone on duty at 8 a. m. and were getting ready to start their daily routine of work when the blast took place. Captain Robert A. Martin of the truck company, changing his clothes in the locker room, was blown out of the room into the hallway against the stair banister, receiving internal injuries and bruises which compelled him to go to the hospital, while Battalion Chief Louis Steckle was blown out of the bathroom into his office.

How the Fire was Fought

In controlling and extinguishing the fires caused by the explosion, 8,150 feet of 2½-inch hose and 450 feet of 1-inch line hose, all cotton rubber lined, was used, as well as 250 feet of chemical hose, six four-gallon fire extinguishers, two forty-gallon chemical tanks, five plug or hydrant streams, eight pumper and engine streams and 450 feet of ladders. A total manual force of 125 uniformed firemen were on duty at the disaster. Twenty-four pieces of fire apparatus, all motor driven and tractor drawn, were in service at the scene of the explosion.

Battalion Chief Daniel Jones of the Seventh Battalion was on duty continually without sleep or rest for over sixty hours after which he had to go to the hospital to have his feet treated, which had become swollen and blistered from climbing over the wreckage, while Engine Company No. 47 was in service seventy-five hours and forty minutes and Engine Company No. 44, fifty-six hours. These two fire companies are

(*Continued on page* 1289)



Upper—The Twisted Mass of Steel Wreckage After the Big Tank Explosion. In the Foreground is the Water from the Reservoirs of the Gas Tank. Submerged in this Miniature Lake were Found Several Bodies of Those Killed by the Blast. Lower—View Looking from B. & O. Railroad Tracks. On Right is Part of Wrecked Tank, and at Left the Ruins of the Pittsburgh Clay Pot Company's Plant, where Many were Killed

WITH THE EDITOR

Christmas Greeting! In this Yuletide Season of peace and good will to all men FIRE ENGINEERING extends to all of its readers every wish for a Merry Christmas. May the season bring you joy and good cheer!

Looking Backward and Forward Glancing into the past, in connection with this our anniversary number, celebrating fifty years of the life of FIRE ENGINEERING and its predecessors, one is amazed at the progress which is revealed. Comparing the knowledge of the fire-fighting science of today with what was known and practiced in the year 1877, leads one to wonder what progress will have been achieved when 1977 is reached. Will the fire proof building be a thing of reality? Will the hazard of fire be entirely removed? Will fire departments and fire-fighting be things of the past? These seem now to be the idle dreams of a romanticist, and yet fifty years ago so would have been motor fire apparatus, high pressure systems, extinguishment by foam, the fire resistant steel sky-scraper forty to eighty stories in height, and all the other marvels of the present age.

In considering the history of the past fifty years, one must be impressed with the steady growth and progress of the fire-fighting profession, and with them the achievements accomplished in the sister science of fire prevention. These two have gone forward hand in hand. The fire-fighter has, through a process of slow evolution, become the fire-preventionist. The chief and his men have not only mastered the art of extinguishing the actual blaze—they have become proficient in the science of fighting the fire before it has occurred.

The advance in fire-fighting facilities, apparatus and appliances has been astounding. From the hand to the horse-drawn and from the horse-drawn to the motor apparatus the evolution has progressed. One has only to compare the clumsy and ponderous horse drawn steamer to the compact and efficient gasoline pumper of today to realize what has been accomplished in the comparatively short period of fifty years. The same applies to the ladder truck and in fact to all of the fire-fighting units. Compare, for instance, the light truck of fifty years ago with the 80-foot aerial of today.

This is equally true as regards hose, tools and appliances. Great strides have been made in rendering these fire-fighting necessities better and more efficient. Many new tools have been perfected, and practically all of the old standard types have been greatly improved in form and material.

The housing of the men and apparatus has also greatly advanced. The modern fire house is no longer an unsightly and, only too often, a crowded and unsanitary structure. The abolition of the horse has added immensely to the betterment of conditions from a sanitary standpoint. The adoption of the bungalow type of fire house for residential sections has had a great influence toward the improvement, from an esthetic viewpoint, of the present day fire house, and has incidentally removed much of the objection to the location of fire houses in such sections. Nowadays, these stations are built so as to so nearly conform with the type of dwelling surrounding them, that excuse for objection to them has disappeared.

All in all, progress in the past half-century has been marvelous. What the next equal period will bring forth is beyond conjecture.

Firemen and the Children A very graceful custom has been growing among the members of fire departments of late years of collecting old toys from generous donors and restoring them to their pristine loveliness to the joy of poor little ones who otherwise would have had little of the season's pleasures.

This work, accomplished during the firemen's leisure hours, has done more to make the children's season the real thing to the youngsters of unfortunate parents than anything else. Beside the pleasure the bringing of happiness to these little ones gives to the men engaged in this work, there is a broadening influence on the mind and character of the firemen who freely give their time to this most excellent benefaction.

Lastly, the practice brings the fire department to the fore in connection with a civic work that is of the highest type and this creates a most important favorable impression of the fire-fighting forces among the citizens.

Those departments which have undertaken this work for the poor children of their cities have reaped the reward of gratitude for their acts. This should be incentive enough for others to follow their example.

Hazards of Christmastide The approaching festive season is one of unusual hazard from the fire standpoint. Christmas trees and Christmas decorations are usually of the most inflammable sort. Fortunately, with the advent of electricity, the dangerous candles on the tree have been substituted by the electric light. This has reduced the risk of fire. But there still remain the tinsel, the paper and the evergreen decorations on trees and around the rooms, awaiting only the match or cigarette to start the "fireworks."

It is to be wondered if the progress of the next fifty

years will include some process which shall render the Christmas tree noninflammable and will provide decorations equally as attractive as those now in use, that will not burn.

At present we still have the burnable tree and the burnable decorations with us, and the fire chief will do well to send out warnings to the citizens of his city or town to avoid placing paper decorations over lights, evergreens near fireplaces, lamps or gas jets, and above all to do away with the use of candles in any manner on trees or decorations or near them.

Such notices, coming from such an authoritative source, will undoubtedly exert a very great influence upon citizens, who otherwise might through careless or thoughtlessness, be led into acts that would result in fire, with perhaps loss of life.

Christmastide thus presents a great fire prevention opportunity to the chief and he should be quick to take advantage of it.

Hazards in Christmas Decorations

Warnings have been issued by the New York Board of Fire Underwriters in reference to the inflammable decorations that are used at Christmas time by merchants, in the homes and in church and club entertainments.

Attention is being called to the fact that the use of cotton and paper scraps to represent snow, and the use of motion picture machines, constitutes an additional hazard not contemplated by underwriters in issuing policies of indemnity covering the usual fire hazard. One of the conditions of the standard fire insurance policy stipulating that "unless otherwise provided by agreement in writing added to the policy, the insurance company shall not be liable for loss or damage occurring while the hazard is increased by any means within the control or knowledge of the insured."

The installation of electric light for display or advertising purposes often introduces a fire hazard unless the work is done by men familiar with the necessary safeguards for this class of hazards. The New York Board also calls attention to the fact that fire insurance contracts require that all additions, changes or alterations made in electrical equipments be reported to and approved by the Board.

In making the customary reinspections of department stores during the holiday season to ascertain the extent and character of decorations, engineers of the Fire Underwriters Board found on sale pyroxylin plastic, or celluloid, lamp shades. The various stores have been notified by the Board that their cooperation is solicited in removing from sale such shades. Further, they request that instructions be issued that no further purchase or display be made of such articles, due to the highly inflammable material used, and the danger to life and property when brought into the home.

Detroit Firemen Reinstated

The Detroit Board of Fire Commissioners has determined to appeal to the Michigan State Supreme Court from a recent Wayne County Circuit Court decision which ordered the reinstatement of George W. Delaney, a pipeman in the Detroit Fire Department, who had been dismissed "for the good of the service" following a trial at which Delaney admitted that he was one of the principals in a drunken brawl, at a time when he was off duty, and that he had been assaulted and robbed by his drunken drinking companions.

Delaney returned to the fire station next morning, looking like the victim of a cyclone—his face battered, his eyes discolored and betraying the symptoms of overindulgence in alcoholic stimulants. He was reported to be "unfit for duty" by his superior officers and he was tried before the Board (his eighth offence) and found guilty of conduct unbecoming a member of the Detroit Fire Department. This at least is the essence of the complaint.

Pipeman Delaney appealed to the Civil Service Board and the Board ordered his reinstatement, sustaining his defence that what had occurred when he was off duty, was of no concern to the Fire Department. The Fire Commissioners refused to reinstate him and resorted to the Wayne County Court. The Court sustained the Civil Service Board and the defendant fireman.

At a recent meeting the Board of Fire Commissioners agreed to carry the case higher. C. Hayward Murphy, president of the Fire Commission, speaking for his colleagues on the Board,

(*Continued on page* 1289)

At An Early Convention of the I. A. F. E.

This reproduction of an old-time photograph shows a group of chiefs and others in attendance at a convention of the International Association of Fire Engineers. It was apparently taken about the year 1900.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

Three-Way Siamese, etc.

To the Editor:

Will you kindly answer the following problems at an early date in order that an argument among the boys at our station may be settled.

Question 1. For what is a three-way siamese used?

Question 2. A company answering an alarm of fire sees another fire while responding to this alarm; should they stop and extinguish this fire, or should they proceed on to the fire for which the alarm was sent in?

Question 3. What distance from a building should the base of ladders be placed so as to make them safe for the men to go up. Your early reply to the above will be appreciated.

Yours truly,

P. S. G.

Answer 1. The three-way siamese is constructed similar to the two-way (commonly known as the Y) siamese, except that there are three connections where the other has two. It is used where a three to one hook-up of lines is required in hose layouts, generally where the stretches are comparatively long and where a good sized stream is required on the fire. For example, three lines of 2½ inch hose 400 feet in length are stretched to a three-way siamese connection and from this point the layout continues on with 100 feet of 3 inch hose which supplies a 1½ inch nozzle.

Answer 2. Your procedure in this case would be governed by the life hazard. If no life hazard existed at the fire which you discover while responding to an alarm, merely drop one man off at the nearest fire alarm box and instruct him to pull an alarm and do whatever he can until the apparatus in response to his alarm pulls up. In the meantime, proceed on with your company in answer to the original alarm.

Should a life hazard exist, then the above would not apply. In such a case the company should stop at the second fire. Assign one man to transmit the necessary alarm and also to notify headquarters of what the company has done so that the original assignment can be covered by another company.

Answer 3. The rule governing the distance at which the base of a ladder should be placed from a building to assure the maximum of safety to the men climbing such is as follows: For non-trussed ladders ⅛ the length of the ladder; for trussed ladder ⅕ the length plus 2. If a 35 ft. ladder were employed (non-trussed) the base of the ladder should be ⅛ of 35 or 4⅜ (or 4½ ft.) feet. For trussed ladders: ⅕ of 35 (or 7) + 2, or 9 feet.

Flash Points, Etc.

To the Editor:

Will you kindly publish answers to the following questions:

1. What is the flash point of alcohol?
2. What is the flash point of gasoline as used in cars?
3. If a room is filled with warm (80°) Fahr. alcohol vapors, what is the possibility of ignition when coming in contact with an inrush of cold air?
4. If a room is filled with gasoline vapors under the same condition what is liable to happen?
5. Will a steam pipe under 15 pounds pressure ignite either vapor?
6. Will alcohol spilled on a steam pipe under 15 pounds pressure ignite?
7. In either case is a spark necessary to cause an explosion?

Thanking you in advance, I remain,

T. F. M.

Answer. We are indebted to the Bureau of Explosives of the American Railways Association for the following information on the above questions:

Answer 1. The flash point of alcohol varies from 65 to 45° Fahr., according to the kind and purity of the alcohol, wood alcohol having the lower flash-point, while pure grain alcohol runs toward the upper limit. The various kinds of denatured alcohol flash at points between those shown above.

Answer 2. The flash point of gasoline as used in cars is zero degrees Fahr. or lower. In connection with questions 1 and 2 it is important to have the proper conception of the words "flash point," which refers to that point at or above which a liquid will give off ignitable vapors. The ignition point or temperature required to produce ignition is, of course, very much higher; where the temperature exceeds the flash point, however, the presence of ignitable vapors in the air may be expected wherever there is a possibility of leakage.

Answer 3. If air and alcohol vapors have been mixed the possibility of ignition is uncomfortably good if any spark or other source of ignition is introduced.

Answer 4. A gallon of gasoline will make an explosive mixture of 2,000 cubic feet of air. In the event of the introduction of a spark into such a mixture inside a room, the room is quite likely to immediately cease to exist.

Answer 5. Under 15 pounds gage pressure the temperature of saturated steam is only 250° Fahr., which temperature is insufficient to ignite either gasoline or alcohol vapor.

Answer 6. As indicated in question 5, steam temperature corresponding to 15 pounds gage pressure is too low to ignite alcohol. It will, however, enormously increase the evaporation rate, consequently the likelihood of vapor explosion should any open flame or spark be present.

Answer 7. As indicated in the answer to question 6, the presence of a spark or flame is necessary to cause explosion.

Some Promotional Questions

The following is a continuation from last issue of the collections of promotional examination questions sent in by "M. A. W." and the replies:

15. Explain fully for what purpose siamese and "Y" connections are for.

16. If a member fails to report for duty after a day's holiday, what is the duty of the officer in charge of a company?

17. If you are ordered to connect a three-inch line of hose to a standpipe what fittings would you use and how would you proceed?

18. After an engine company has laid in the first line of hose at a fire a second line is ordered by the officer in charge. What are the rules?

19. Why are increaser and reducer connections carried on apparatus in the high pressure districts?

20. When there is a large fire in a given section of the city calling all companies in that section, what precautions are taken to protect other portions of that territory?

21. State through what channels official communication passes in the fire department.

22. If a fire is reported extinguished by other than a member of the department, what are the duties of the commanding officer of the company?

23. Describe four different cases of reports a company commander is directed to make under the rules and regulations.

24. If you are working a ⅞-inch tip and want a better stream and greater distance what would you do?

25. How and why should buildings on fire be ventilated?

26. Name the principle appliance required to be provided in hotels for the protection of guests?

27. Write a statement of the duties and responsibilities of a lieutenant of an engine company on fire grounds.

28. In responding to an alarm of fire what apparatus has the right of way?

29. Write out in full the duties of a lieutenant in charge of a H. P. Hose Company on his arrival with company at a fire in the high pressure district.

30. What are the duties of a lieutenant who is detailed in charge of a detail of firemen at theatre or similar place?

31. What are the duties of a lieutenant if a second line of hose is required?

32. What are the duties of a lieutenant in charge of a hook and ladder company on his arrival at fire?

Answer 15. The siamese connection is provided so that two lines of hose may be brought into a single line to concentrate a large flow through a single nozzle, or to make use of parallel line in order to reduce friction loss. The siamese connection is a connection with which lines are brought into a single line. A "Y" connection on the other hand, is used for breaking a single line into two or more connections.

The "Y" connection is used for separating the flow in a single line into two or more separate streams which may be employed at different points on the fire. Considerable use of this device is found in connection with fire boats where the fire boat operates through a 3½ inch hose which in turn is connected to a "Y" connection, breaking up the line into two lines which may be of 3 inch or 2½ inch hose equipped with medium size nozzles.

Answer 16. While this question is covered by your local rules and regulations, the following "General Order No. 61" tells how the New York Department handles such cases.

"All members of the department shall, upon return from an absence without leave from the proper authority, make out a written report (upon printed form) in the presence of the then commanding officer and house watchman, stating therein the time when they left quarters and the time they returned to quarters and giving their explanation for such absence. Such statement shall then be signed by the then commanding officer, house watchman and a member making the same and forwarding through the regular channels to the Chief of the Department.

"Upon the trials of charges for absence without leave from proper authority only the members above designated and the commanding officer of the company shall be summoned to the trial except that the absentees may be requested that members be summoned on their behalf."

"The Commanding Officer of the company shall thoroughly investigate the statement made by the absentee before the time set for the hearing of the charges and appear at the trial the same as a witness."

In most departments absence without leave is a misdemeanor which requires the bringing of charges against the offender by the company commander.

Such charges are made by the captain of the company who transmits them through his Battalion Chief to the head of the department.

Before filing charges against a member of the company for absence without leave it is essential to determine the cause for such absence. It should always be borne in mind that serious illness may be the reason for the absence of a member of a company and this must be taken into account before charges are preferred.

Answer 17. If 3 inch hose only is available it will be necessary to use a reducer to connect to a standpipe in a building. Standpipes of buildings are usually equipped with 2½ inch connections and in order to connect 3 inch hose to a 2½ inch connection it is necessary to use a 3 inch to a 2½ inch reducer.

In employing the reducer it is usually attached to the hose first and then when on the hose the other end is screwed on to the standpipe connection.

Answer 18. The Rules and Regulations of your department will answer this question. Not having a copy on hand it is impossible for us to give you information on this question.

Answer 19. Increasers and reducers are carried on the apparatus in the high pressure districts in order to enable interconnection between 3 inch hose used with a high pressure system and the 2½ inch hose ordinarily carried on the pumpers. The increasers are used for connecting 2½ lines to 3 inch lines or for connecting 3 inch hose to 2½ inch connections on pumpers.

The reducers are used for reducing the diameter of lines by connecting 2½ inch hose to 3 inch hose.

Answer 20. When there is a large fire in a given section of a city calling all companies in that section, other companies in neighboring sections "cover in," that is, move up to occupy the stations emptied by the apparatus responding to the fire. This "covering in" is arranged for by the running cards of the department.

Answer 21. All communications relating to the official business of the department from or to any of the members of the uniformed force or the un-uniformed force attached thereto are first properly indorsed and forwarded through the regular channels, which is, through commanding officers of companies, to Battalion Chief, to Deputy Chiefs, to Chief of Department and to the Commissioner, when necessary and the reverse order from superiors to subordinates.

In other words the communication from members of the department must pass through intermediate commanding officers up to the head of the department.

Answer 22. When a fire is reported extinguished by other than a member of the department at the fire, the commanding officer should make sure that the fire is out, going carefully over the ground to see that no fire has worked up the partitions or in other concealed spaces.

Report of this fire should be forwarded along with reports of other fires through the proper channel as required by rules and regulations.

Answer 23. This is covered in your rules and regulations.

Answer 24. Where a ⅞-inch tip is being employed and there is a poor stream, it is an indication that the pressure is unsatisfactory. If the pressure is weak due to excessive friction, then an improvement can be made by using a smaller size tip, namely, ½ inch. The smaller tip reduces the flow and reduces the friction loss, giving a greater pressure at the nozzle and a corresponding greater reach.

If the ⅞-inch stream is being thrown at effective pressure but not sufficiently large to produce results then it will be necessary to use a larger tip. However, it should be remembered that where the pressure drops due to friction in hose, a smaller size tip means a higher nozzle pressure and a greater corresponding range of stream.

Answer 25. Ventilating buildings should start at the top. But building should not be opened up until there are streams ready to follow up the fire as soon as the building is opened up at the roof.

After the roof has been opened up over stairways or other vertical channels for heat and smoke passage, then the windows on the various floors should be opened to clear the building of smoke.

Building should be ventilated to prevent mushrooming of fire on the upper floors. If the hot gases and smoke rise to the upper floors and cannot escape they are going to force themselves over the top floor area and cause ignition of material thereon. Then as the hot gases and smoke back down they will ignite other floors in their path.

The opening up for ventilation not only clears the building of the smoke and hot gases but also makes it possible for the men to operate at close quarters which is most essential in quickly bringing the fire under control.

Answer 26. The principle appliances required for the protection of guests at hotels include, fire alarm system, standpipe with hose connections on various floors, fire extinguishers, and sufficient means of egress such as fire escapes, enclosed stairways, etc. Some hotels have provided sprinkler systems as an additional safety measure against fire while others have installed thermostat fire alarms which are operated by presence of heat.

Some of the smaller hotels have placed rope ladders or chain ladders in the various rooms but this is by no means a satisfactory substitute for well constructed fire escapes.

Answer 27. If a lieutenant is the senior officer present, he then commands the company and assumes all duties and responsibilities of a captain. If no companies, other than those with lieutenants in command, answer the alarm, the lieutenant first to arrive retains command.

Answer 28. In responding to an alarm of fire, fire apparatus has the right of way with one exception, namely, vehicles operated by the U. S. Post Office department. Outside of the Post Office trucks, the fire department has the right of way on city streets.

Answer 29. The answer to this question is covered in your rules and regulations.

Answer 30. The duties of a lieutenant detailed in charge of firemen at a theatre or similar place are: to see that all aisles are kept clear, that space behind aisles at rear of theatre is in no manner blocked, that emergency doors or fire doors are in operating condition, that no unnecessary hazard is caused by apparatus or materials on stage, that "no-smoking" ordinances are enforced in the theatre, and that fire appliances are in shape for immediate use.

Answer 31. The way this question is worded is hard to answer unless definite rules have been established in the department covering it. In large departments where the company in command of a captain and a first line has been laid, the captain then orders the lieutenant to have a second line laid and it is then the duty of the lieutenant to see that such line is properly laid, hooked up and put in operation.

Answer 32. It is his first duty to report to the officer in charge and receive instructions from him. If the lieutenant in charge of the hook and ladder company is the first to arrive at the fire he should so place ladders as to aid in rescue of persons imprisoned at fire and should also assign his men to go through the building if possible and make sure that no one is imprisoned within the building and in danger of the fire. The first function of a ladder company is to save life and the second function to assist the engine and hose companies in operating at a fire by ventilating, opening up, raising ladders for lines, etc.

W. Paterson, N. J., Dedicates Fire Station—The new fire station in W. Paterson, N. J., was dedicated on November 24.

TWO PATENT LEATHER PLANTS DESTROYED IN N. WOBURN, MASS.

Firemen Handicapped by Strong Wind and Low Water Pressure—Several Fire-Fighters Narrowly Miss Death—10,000 Hides Stored in Each Plant

HANDICAPPED by poor water pressure and a strong wind, firemen in North Woburn, Mass., were unable to prevent the spread of fire which finally destroyed two patent leather plants and caused a damage estimated at $200,000.

The fire started in the drying building of the Hopkinson Japanning Company. The fire spread to three large buildings and swept to an adjoining factory of the Peterson, Merrill Company.

Flames soared more than one hundred feet towards the sky. Dense clouds of acrid smoke hung over the city and attracted thousands to watch the work of the firemen. Luckily there was a shift in wind for that saved three other nearby plants from destruction.

The fire was discovered in the "coop" drying room by two employees who arrived early at the plant. With the aid of the night watchman they attempted to fight the flames but a large drying fan created a draft that spread the flames to oil and naphtha containers. The three men fled for their lives when the intensity of the blaze increased.

When firemen arrived, the entire drying room was ablaze. Chief Frank E. Tracy ordered a second alarm and summoned aid from Winchester. Flames leaped to the finishing factory of this plant—this was a wooden building about two hundred

Fire Which Destroyed Two Leather Plants in N. Woburn, Mass.

feet long. Fire then jumped to the Hopkinson packing building and destroyed a number of small buildings in its path. Firemen saw that their weak hose streams had little effect and they confined their attention to wetting down nearby buildings to stop the rapid advance of the blaze.

About six firemen working on a ladder at the end of the Peterson, Merril drying room were almost caught. The ladder caught fire and the men were forced to jump to the ground. Several muffled explosions were heard as naphtha and other chemicals were touched off. The entire building caved in.

Both factories had been working at capacity at the time of the fire. In each plant more than ten thousand hides were stored, both finished and in the process of manufacture. The recently installed sprinkler system in the Peterson, Merril plant proved ineffective because of the poor water pressure.

For the past two years, Chief Tracy tried to have larger water mains installed in that section. Each year, in his annual report, the chief recommended and some say, even begged, for higher water pressure in the district. But for some reason or other, the recommendations were never followed.

The management of both plants announced that they would take immediate steps to continue operations as there are a number of orders on hand. The cause of the fire is uncertain.

Cleveland, Ohio, Firemen to Have Pay Increase—The 0.7 mill tax levy for increasing the pay of the firemen and other city employees in Cleveland, Ohio, has been approved. By the approval of this bill, firemen will receive an increase of $5 a week.

WANT GASOLINE PLANT REMOVED FROM CITY AFTER BAD FIRE

New Rochelle Law Department Asked to Decide Whether Oil Plant Is to Remain—Blaze from Flash Fire While Filling

By WM. JEROME DALY

NEW ROCHELLE, which is forty-five minutes from Broadway, but in Westchester County, N. Y., is in the throes of an internal official controversy these days over the question of whether or not the city officials will any longer countenance within the corporate limits of the city (now that it has recently been damaged by fire) presence of gasoline tanks of the Pure Oil Company. The community was aroused by the enormity of a fire in this plant on October 31 last, from the shock of which the residents in that exclusive suburb have not as yet fully recovered.

Chief Walter Jones, New Rochelle

Fire Chief Walter Jones, smoke eater since 1893, having served in the New York Fire Patrol and the New York Fire Department, rising to the rank of battalion chief in the latter and for the past seven years Chief of the New Rochelle Department, which he transformed from a volunteer to a paid force and improved its efficiency and morale, has side-stepped the question of whether or not the gasoline plant is to remain and has referred the matter to the city's Law Department for an opinion. Chief Jones says, as a fireman, he's afraid of nothing in that line, but for the peace and comfort of the residents of New Rochelle, he would not object if the plant was moved out to the sticks where there are plenty of open spaces.

The fire which started the official controversy in New Rochelle occurred at four o'clock in the afternoon at a time when a tank barge containing 100,000 gallons of gasoline was filling the tanks shown at A and B in the diagram through a pipe line. The barge was moored in Echo Bay which is about 700 feet to the northeast of Echo Street. Tank A holding 60,000 gallons was

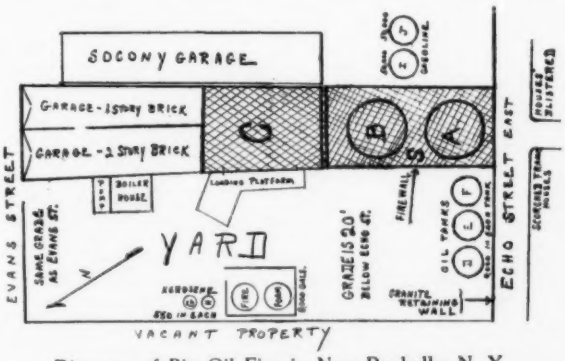


Diagram of Big Oil Fire in New Rochelle, N. Y.

filled and the supply was shifted to tank B, also 60,000 gallons, which overflowed through a trap door in the roof of the tank and spilled into the pit. A passerby on Echo Street saw and heard the splash and called the Fire Department on the telephone.

Before Deputy Chief Oscar Grabb arrived, a flash fire had started at S between the two tanks. The tanks were encased in concrete walls which were built up to the level of the sidewalk of Echo Street. The tanks rose a few feet higher than the sidewalk. Deputy Chief Grabb reached Evans Street and Main

Street (one block west), when there was an explosion. Flames shot 200 feet in the air. Chief Jones arrived. He skipped the second but pulled a third alarm, and then special called another engine and a spare hose wagon and a spare steamer, giving him a total of four engines, two trucks, one deck gun, one spare hose wagon and two spare engines.

Fire foam was used, but the flames reached into a two story warehouse C by way of windows, although the building is slightly separated from the enclosure around the burning tanks A and B. The warehouse contained 200 drums of 55 gallons each of gasoline and numerous portable gas tank wagons for sidewalk and garage uses. The warehouse had steel beams but wooden floors.

To the east were two gasoline tanks I and J which were scorched. Each contained 50,000 gallons owned by the Standard Oil Company. The contents were drawn off. To the west were three lubricating oil tanks, D, E and F, each containing 4,000 gallons. To the northwest adjoining the fire foam house were two kerosene oil tanks, G and H, each containing 550 gallons. All were protected.

The fire was resisted with fire foam in the burning tanks and with water on all outside structures. The warehouse was burned out, but Chief Jones and his men managed to confine the fire to that building and the two tanks A and B. The fire affected only the area which is shaded in the diagram.

It is estimated that at times the heat reached a temperature of 3,000 degrees. The fire lasted until midnight, after which the balance of the night was devoted to overhauling. Three hundred feet to the west was a multi-family apartment house. The small one family frame dwellings to the south were scorched and some of them blistered. There is swamp land to the north. To the northeast near where the tank barge was discharging its cargo is the plant of the Westchester Lighting Company.

Chief Jones regards the fire as the most hazardous that has visited New Rochelle.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending December 2

VALPARAISO, IND.—Elevator at Nickel Station, 3 mi. east.. 25
DRESDEN, OHIO—Plant of Zanesville Gravel Co..... 80
NORTH PLATTE, NEB.—Musical section, Dixon Stores damaged 30
SALISBURY, N. C.—Rowan County Home, south of here..... 35
PEORIA, ILL.—Immaculate Conception Convent damaged.... 25
SALEDONIA, N. C.—Barn at State Prison Farm destroyed.. 30
PONCE DE LEON, FLA.—Planing mill, Hart Lumber Co..... 80
EVERETT, MASS.—Lebow Bldg., Everett Square, damaged... 80
AMELIA, OHIO.—A. W. Colder Canning Plant and adj. property 25
ELY, NEV.—Dept store of Campton Commercial Co..... 80
WAYNESBORO, VA.—Plant of Samuel Valentine Shirt Co.... 110
DECATUR, GA.—Warehouse of Smith Brothers..... 25
HAZARD, KY.—Building of Star Furniture Co..... 40
JOHNSON CITY, TENN.—Plant of Sells Manufacturing Co.... 80
ROMNEY, W. VA.—Business establishments damaged..... 40
HICKORY, MISS.—High School Building damaged..... 25
PONDER, TEX.—Gin owned by Swafford Cope destroyed.... 25
GLENDON, N. C.—Plant of U. S. Talc & Crayon Co., Silver City Rd. 40
HATTIESBURG, MISS.—Mattingly Baking Plant destroyed... 80
CHICAGO, ILL.—South Side plant of Public Food Products Co. 300
MALDEN, MO.—Store of Jesse Mills destroyed..... 25
ENGLAND, ARK.—Building of American Gin Co..... 25
CHIPPEWA FALLS, WISC.—Moulded Products Co. property.. 200
CHANNEL LAKE, WISC.—Smiths Hotel destroyed..... 25
ST. LAMBERT, QUE.—Plant of Monarch Electric Co., Ltd.... 50
MONTREAL, QUE.—Ayerst, McKenna & Harrison, Craig St... 400
LIMESTONE, ME.—Barn of Howard Nichols destroyed..... 65

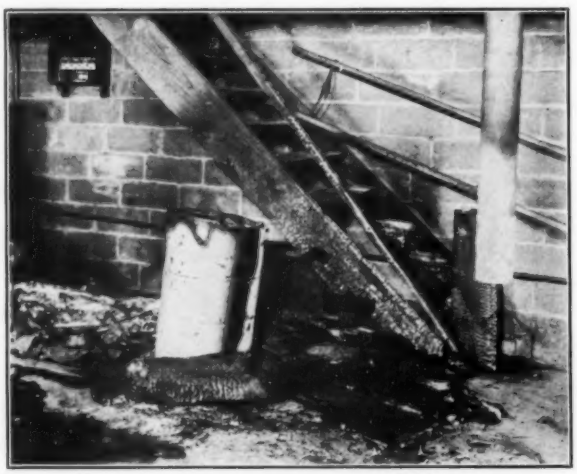
Week Ending December 9

OMAHA, NEBR.—Bldg. of J. H. Haney & Sons and adj. property 100
CAMBRIDGE, MASS.—Manhattan Market Co., Central Square. 80
CHARLOTTE, N. C.—Basement of Latta Arcade damaged..... 25
DENTON, TEX.—Business property owned by J. B. Schmitz.. 40
FOLLANSBEE, W. VA.—F. M. Blosser garage damaged..... 25
STAR, N. C.—Several business establishments damaged..... 25
BROOKLYN, N. Y.—Bldg. occupied by Home Utility Co., Dean St. 65
NORTHAMPTON, MASS.—Two bldgs. of J. E. Lambie & Co.. 300
NANTICOKE, PA.—Tipple of Susquehanna Collieries Co..... 40
GRAND ISLAND, NEBR.—Farm bldgs. on Taylor ranch destroyed 35
MONROE, MICH.—Star Clothing Store and Stockford Accessory Store 25
TINGLEY, IOWA.—Department store and adj. property..... 30
CANTON, ILL.—Y. W. C. A. bldg. and adj. property damaged.. 25
AUVERGNE, ARK.—Business district damaged..... 110
MACON, GA.—Lee's Dept. Store and adjoining bldg. damaged.. 180
JACKSON, MISS.—Plant of Graham Stove & Reading Co. destroyed 400
GEORGETOWN, S. C.—Plant of Brooklyn Cooperage Co. damaged 200
ST. LOUIS, MO.—Rear section of Buckingham Hotel annex.... 135
ALTOONA, PA.—Tierney Apartment damaged..... 40
NORWICH, OHIO.—Several business establishments destroyed. 25
LATHROP, ILL.—School bldg. destroyed..... 100
NEW ROCHELLE, N. Y.—Apartment, Main St. & Franklin Ave. 30
CHAMPLAIN, N. Y.—Presbyterian Church destroyed..... 30
DANVILLE, ILL.—Irequois bldg. destroyed..... 50
MARQUETTE, MICH.—Business bldgs. damaged or destroyed.. 65
CLEAR LAKE, MINN.—F. Henkelmeyer's general store..... 25
ST. PAUL, MINN.—Factory wing, Minn. Mining & Mfg. Co.... 165
MARIANNA, ARK.—Miller Lumber Co. plant damaged..... 25
GRANDVILLE, MICH.—Plant of L. H. Hubbell Mfg. Co..... 25
UTICA, N. Y.—Business bldg. 2020 Genesee St., damaged..... 30
DENTON, TEX.—Establishment of J. B. Schmitz damaged..... 40
COLGATE, OKLA.—Several business establishments damaged.. 65
HOLYOKE, MASS.—Hertzmark Block, High St..... 50

Fire Extinguishes Itself

While not uncommon, a fire started in a laundry in East Aurora, N. Y., and after burning for a short while, went out of its own accord.

There was a lint conveyor in the basement, where the fire started, that came from the laundry dryers on the floor above. This conveyor emptied into a wooden barrel which was later consumed by the fire. The space underneath the stairway was filled with broken boxes and fine kindling wood. The ceiling overhead was entirely of wood construction. The door at the



Basement Damaged by Fire That Finally Extinguished Itself

top of the stairs was a wooden panel door, and although this door blistered from the heat of the fire, it did not burn through. The entire ceiling is about one hundred by thirty feet with practically no partitions. The only openings to it are the door at the head of the stairs which was closed, and a few small transom windows at either end which were also closed.

The fire once started had sufficient material to support the blaze. Evidences indicate that the room was subject to a very high temperature and was filled with considerable smoke.

No fire alarm was turned in. The fire was not discovered until the following morning at which time it was found that it had completely extinguished itself. Some members of the fire department believe that the open barrel which is shown in the photograph and which was filled with chlorate of lime, was responsible for the fire going out. A strong chlorine odor was noticed in the building the following morning.

S. C. PEEK.

Dover-Foxcroft Dedicates New Station—Dedication exercises were held in Dover-Foxcroft, Me., for the new fire station. The building costs $25,000.

Wakefield, Mass., to Join Telegraph Systems—The police signal system of Wakefield, Mass., will be joined directly with fire alarm headquarters.

Pumper Tested for Champaign, Ill.—The new pumper for Champaign, Ill., has passed the customary Underwriters test and Chief John Ely is well pleased with the apparatus.

New Station Opened in N. Canaan, Conn.—The new fire station in North Canaan, Conn., was officially opened in North Canaan, Conn., on Armistice Day. The public accepted the invitation to inspect the building and members of the department were on hand to take the visitors through.

INDUSTRIAL PLANT PROTECTION

PLANT HOUSEKEEPING AND ITS RELATION TO FIRE HAZARDS

Cleanliness Important to Fire Protection—A Lighted Match on a Clean Floor Will Not Start a Fire—Dirt and Filth Start Fires

By EUGENE ARMS,
Manager of the Mutual Fire Prevention Bureau, Chicago, Ill.*

Let us consider for a moment why cleanliness is so all important to fire prevention. Ignition must, of course, first take place, then the fire feeds on whatever combustible material it finds, and is finally detected and controlled or not, according to the means available. It simplifies our fire prevention work materially to make these three divisions and consider each separately. Now let us see how filth affects each division.

Spontaneous combustion is one of the very common causes of fires. This is the term applied to gradual oxidation of porous substances. The heat generated increases the rate of oxidation until the ignition point is reached. Fires from spontaneous combustion are particularly destructive because they usually occur in closets or out of way places where piles of dirt or oily rags accumulate. An oil saturated rag or mop is particularly dangerous, but any accumulation of dust or dirt, if either damp or oil soaked, is dangerous.

Clean Surface Dissipates Heat

A coating of grease and dust on a bearing may be the direct cause of ignition. The clean iron surface of a bearing dissipates heat with sufficient rapidity so that the ignition point is seldom reached. Besides, there is nothing to ignite if the bearing is clean, unless it be one of the old type of flat bearings on a wooden bridgetree. Many other instances might be cited to prove that filth is directly responsible for the ignition of fires.

A much more forceful argument is presented by the second step in the consideration of the subject, the elimination of combustible material. Dust, dirt and filth are almost without exception highly combustible. A match or cigarette thrown on a clean wooden floor will not start a fire, but when the floor is covered with dust or oil or litter, ignition is almost certain to take place if the match is still burning. Then the rapidity with which the fire spreads is entirely dependent on the combustibility of the surface. A clean board floor can scarcely be ignited from the top, and, if ignited, the fire will spread very slowly. A coating of grease or oil or dust speeds up ignition, often to the point of a flash fire or, depending on the nature of the material, an explosion.

Explosion Due to Bad Housekeeping

The recent explosion and fire in Detroit, where so many lives were lost, was directly traceable to bad housekeeping, according to reports. Highly explosive materials were being used in the process of manufacture, and sufficient quantities were permitted to accumulate on the floors and walls so that when ignited, supposedly by the breaking of a mercury light, the explosion occurred and the workmen had no chance for their lives. When the Northwestern Elevator blew up in Chicago, killing all the workmen near the plant, no one even contended that it was reasonably clean. Such an explosion could not have occurred had there not been great quantities of dust available for ignition. Just previous to the explosion of the elevator in Kansas City, where 14 lives were lost, the house had been condemned by the government because of its accumulation of dust, and work had begun on cleaning it up. A recent fire which destroyed a bedding factory in Minneapolis attracted considerable attention. Reports state that the fire traveled so rapidly across the walls, ceilings and floors that the man who stopped to try to fight it was badly burned before he could get out. Lint everywhere, that is the answer. Bad housekeeping. Read the story of every holocaust that occurs in an industrial plant in America. Details vary, but the main factor is always the same: fire spread so rapidly that all exits were cut off. And what is back of it? Nine times out of ten it is bad housekeeping.

These holocausts and explosions impress us with their very horror; but their effect is but slight in the course of a year, both in lives and property destroyed, as compared with the comparatively small fires that are occurring from day to day; and in these, too, housekeeping plays the major role.

The third phase of our subject has already been touched on. The most effective system of fire fighting equipment is badly handicapped by a flash of fire and usually worthless when an explosion occurs. If the protection is not automatic, the fire must be discovered before apparatus can be used, and the rapid spread of fire reduces the probability of its being discovered while it is still controllable. When discovered, control depends entirely on the size and stubbornness of the flame, and, other things being equal, the flame depends on the dust and dirt and litter that feed it. The clean plant burns slowly.

Therefore, in all three phases of fire prevention, housekeeping is a major factor. Dirt and filth start fires, spread fires and make methods of control ineffective.

An important point, possibly the most important point, is the effect of cleanliness on the habits and actions of employees. We are told that soap has been one of the greatest factors in the civilization of the world. Personal cleanliness creates higher ideals. Just so, plant cleanliness creates careful employees. Only the most slovenly smoker would throw his cigar stub in the center of a clean floor. He seeks justification in the fact that others have discarded their litter in a corner, and, finding it there, adds his stub to the pile. It is human nature to follow where others have led, particularly if that is the line of least resistance.

The very effort necessary to cleanliness creates a higher morale. Pride on the part of the owners and managers carries down through the ranks. A clean bearing is seldom out of repair. The pride that induced cleanliness insures a smooth running bearing, while the bearing that is buried in grease and dirt runs until it is too hot to continue.

We naturaly distrust the man with a week's stubble on his chin, soup spilled down his vest, and the mud from many rains on his shoes. That man is careless in everything and we should distrust him. A certain amount of pride is essential to well being. So it is with an industrial plant. Bad housekeeping is a direct result of carelessness, and carelessness is responsible for a very large proportion of fires.

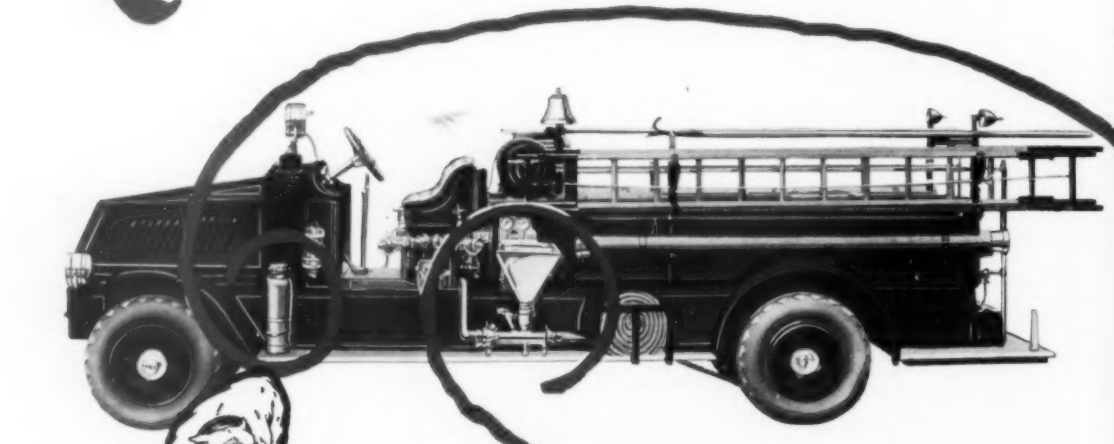
Pride in an industrial plant must originate with the management and emanate down through the ranks. It cannot be expected to originate with the employees. It, therefore, becomes the duty, and it should be the pleasure and pride, of every management to make housekeeping one of the major subjects of its industrial program and be content only when the highest standards are maintained.

* From paper read at a meeting of the Fire Prevention Section of the National Safety Council.

Picturesque Alpine Village Destroyed by Fire

Puy-Saint-Andre, a village in the Hautes Alps was completely destroyed by fire, and of the eighty-five homes, only two were saved. Village residents carried what baggage they could to places of safety.

The new Mack



Mack

The new Mack Pumper—built in all the usual combinations—is Fomon-equipped throughout. Mack Type 15, illustrated above, is only one of many available for complete fire protection.

Recognizing the importance of foam as a fire combatant of first order to fire departments, Mack has made an intensive and careful study of the foam generator, and is prepared to cooperate in the design and construction of trucks carrying any foam-producing capacity.

Foam equipment may be portable or fixed in a permanent hook-up. Such hook-up interferes in no way with the regular water protection from the same supply, operating, when necessary, through the same pump.

Any desired equipment, in conjunction with the Fomon generator, may be used, and arrangement of apparatus may be made to fit individual requirements.

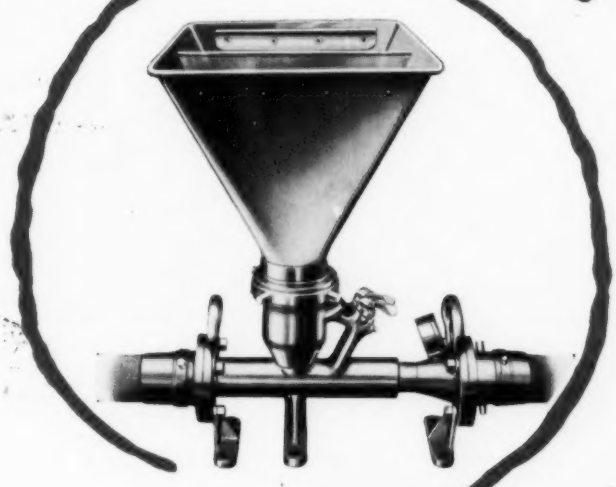
MACK TRUCKS, Inc.

25 Broadway New York City

More than one hundred direct MACK factory branches operate under the titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION," "MACK MOTOR TRUCK COMPANY," or "MACK TRUCKS OF CANADA, LTD."

~ and FOMON !

Fomon Fire Department Type foam extinguishers for smaller fires are also standard equipment on the new Mack Fire Apparatus.



The new Mack is Fomon-equipped throughout. And presenting a new and advanced development in fire truck foam equipment—a continuous foam generator actuated first by a booster tank and later by the regular hose line from the water supply direct or through the pumps as pressure dictates.

The new Mack, Fomon equipped, arrives at a fire. Instantly, through the booster tank and the Fomon generator, FOAM is available, with necessary water pressure from the tank, while hose lines are laid and pumps (if needed) started. In fact, the new Mack can supply foam, using the water supply in the booster tank while hose lines are being stretched.

Under old systems, when the tanks were emptied of the liquid ingredients of foam that was the end. Now the tanks carry water only—and the foam stream is continuous, dependent only upon dry chemicals and a supply of water.

AMERICAN FOMON COMPANY

1005 Drexel Building Philadelphia, Pa.

OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

HOW TO OVERCOME TROUBLE DUE TO SMOKE IN BUILDINGS

Explanation of How Smoke Acts on the Lungs and the Blood—Firemen Warned to Use Gas Masks—Chemicals Used to Filter Foul Air

By DR. SHIELDS WARREN,
Pathologist of Palmer Hospital, Boston, Mass.*

THE development of modern civilization has brought about an entirely new group of hazards for the firemen. The expert salvage squads who rushed the furniture from burning palaces in Ancient Rome had little to fear but the visible and obvious hazards of smoke and flame. With our modern types of construction, to the irritating carbon particles in smoke there are added the dangers of carbon monoxide produced by imperfect combustion, illuminating gas, ammonia fumes from refrigeration plants, hydrogen sulphide from electric refrigerators, and particularly in the larger cities all types of chemical fumes. Rarely, even the fireman's friend, the hand extinguisher, may turn on him. This is true only of the carbon tetrachloride type. Chlorine and the deadly phosgene or mustard gas may be produced when carbon tetrachloride is spread on heated material. In addition, hydrochloric acid gas may be formed as well. In the open air, of course, the danger of carbon tetrachloride extinguishers is slight, but in a close, unventilated space they are by no means entirely safe.

The two most important hazards to be considered are smoke, complicated at times by the products of incomplete combustion, particularly carbon monoxide, and illuminating gas. First let us briefly consider what smoke is. When materials are burned, oxygen combines with the carbon and if combustion is complete the harmless gas, carbon dioxide, the same that is used to charge soda water, is the result. However, sometimes portions of the carbon are carried away from the fire by the currents of heated gases before they have been burned. As a result there are particles of soot and tar given off, and various distillation products formed that have an extremely irritating effect on the nose and eyes. None of these are poisonous in the amount in which they are found in ordinary smoke, and individuals vary greatly in their resistance to them. Some people are able to stand far more smoke than others. Ordinarily, however, the immediate effect on throat, eyes and lungs is so powerful that it prevents the fireman from performing any effective work, and may in extreme cases so interfere with his breathing as to produce unconsciousness.

While we are still speaking of smoke I will digress momentarily to explain something that you have probably noticed many times, that men are as apt to collapse in fresh air, once they have entered it after having been heavily smoked, as they are in the smoke itself. This is due to a rather complicated mechanism. We breathe because carbon dioxide accumulates in the blood and this carbon dioxide stimulates a respiratory center in the brain which controls our breathing. Now in smoke there are large amounts of carbon dioxide and the firemen breathing it are stimulated to breathe very deeply. On leaving smoke and entering fresh air this deep breathing continues and a large proportion of the carbon dioxide is washed out of the system by the deep breathing. There is not sufficient carbon dioxide in the outside air to stimulate breathing at a rapid rate, so the man collapses. You may easily check the truth of this by breathing deeply and rapidly for a minute or two, and you will find that you soon become light headed, and if you could continue it voluntarily long enough you would lose consciousness.

Prompt recovery from this collapse can be brought about by the Schaefer prone pressure method of artificial respiration, and if any carbon dioxide happens to be available it will aid materially in reviving the man, and in preventing him from having unpleasant aftermaths. The fizz that comes off from ginger ale is largely carbon dioxide and a convenient rough and ready method of supplying carbon dioxide is simply to pour freshly opened ginger ale into a cup, or even the palm of your hand, and hold it near the nose of a smoked person. If they are breathing slightly, artificial respiration will not be necessary as they can take the carbon dioxide into their lungs themselves. However, if they are not breathing, artificial respiration should be used in addition.

The other important element of smoke aside from the irritating factors, but far the most dangerous, is a colorless, odorless gas, carbon monoxide. It is present wherever there is incomplete combustion, and its amount varies according to the intensity of the fire, amount of ventilation, and the type of material burned. In a cellar fire, in an unventilated attic, or even in closed rooms the percentage of carbon monoxide may be very high.

At the present time it is responsible for more deaths than all other gases combined. It is the poisonous element in illuminating gas. A few breaths of air containing two parts per hundred of carbon monoxide will cause unconsciousness and death practically as quickly as will drowning. Moreover, the harder a man is working the more air he breathes and so the more carbon monoxide present he will take into his lungs. Men vary somewhat in their resistance to carbon monoxide poisoning. The damage is done by the poison combining with the red coloring matter of the blood more readily than oxygen so the necessary oxygen can not be taken up. Consequently, the breathing of oxygen does no good, as the oxygen is merely breathed in and out of the lungs again without being absorbed. The victim dies of suffocation just as surely as though his supply of air were cut off.

Firemen should regard as dangerous atmospheres containing as low as one portion per thousand carbon monoxide, especially if they are in it for more than ten minutes. The important thing to remember is this, the ordinary type of gas mask such as the army gas mask, does not protect against carbon monoxide and indeed many other of the gases encountered in the course of fire fighting. Not so long ago carbon monoxide produced by the fires themselves would be reinforced by that from illuminating gas because not infrequently the meter connections would be lead, and in a very hot fire they were very shortly melted, and the gas was set free.

The symptoms of carbon monoxide poisoning are very insidious, and its chief danger lies in the fact that frequently a person may be overcome by it without even realizing that there is anything wrong. Frequently in the winter we read of deaths from this poison; a man while warming up his car in a closed garage is overcome by carbon monoxide from the exhaust which fills the air and poisons its victim without warning. At first only a slight shortness of breath and palpitation of the heart are noticed, and usually the senses and the powers of judgment and motion are greatly impaired before the person is aware that anything is wrong. Usually he becomes drowsy and stupid. Muscular exertion greatly increases the danger of being overcome, as a man working actively will breathe into his lungs eight to ten times as much air, and consequently eight to ten times as much carbon monoxide as an individual at rest. There is another unfortunate effect of carbon monoxide. Even though a person may be rescued from it still living though unconscious, sometimes afterwards death may result from damage done to the nervous system by the poison during the time it was present in his blood. After effects of milder poisoning may sometimes persist for hours or even days, and permanent damage is not unknown.

One of the most sensitive indicators that we have for carbon monoxide is the canary bird, and the rescue parties of the Bureau of Mines, for example, when entering a mine in which there had been a fire or explosion carry with them a canary bird. When the bird falls unconscious from his perch it is evident that there is sufficient concentration of carbon monoxide to be dangerous. However, firemen can not very well do their work with a bird cage in one hand, and a hose line in the other, so they have to take their chances and use their judgment.

In any case where the presence of carbon monoxide has reason to be suspected, particularly in cellar fires, in gas-filled rooms, or in trenches over a leaking gas main, the universal type gas mask should be used. When we come to the particular types of gas masks to be used for different substances there are many factors to be considered. In the first place, while many people can stand a high concentration of smoke, and every fire department has its smoke eaters, the eyes of many members of the department give them as much trouble as do their lungs and consequently a mask that covers the entire face is advisable. The army type gas mask will effectually protect against soot, tar, and smoke, but affords no protection at all against carbon monoxide, ammonia, or other chemical fumes. The Bureau of Mines cooperating with

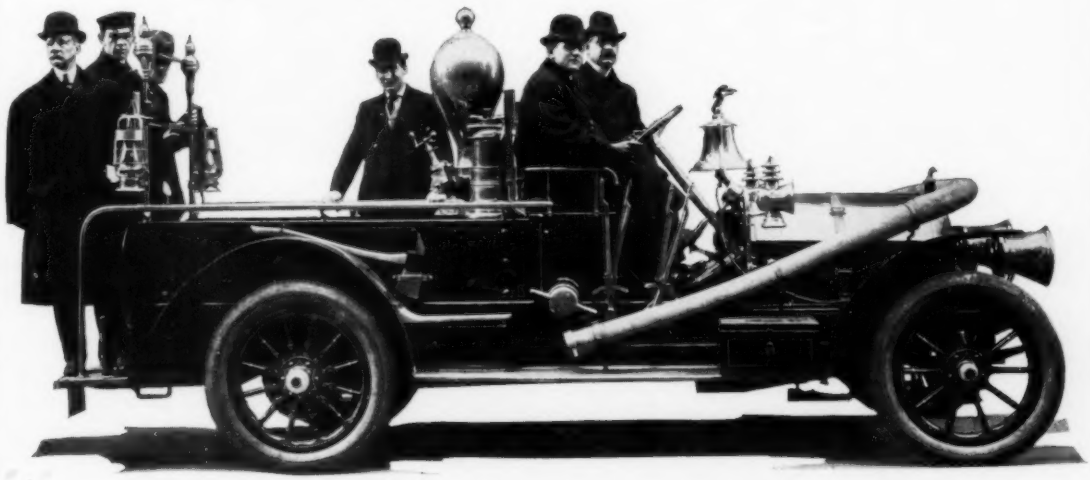
* Address delivered before officers and members of Needham, Mass., fire department.

The D. A. Woodhouse Mfg. Co., Inc.

Established 1885

and still going strong!

Upon this occasion when the 50th Anniversary of Fire Engineering is being celebrated, it is a pleasure to join with our friends in recalling the early days of the business when so many interesting developments were in the making. In our office we maintain, available for inspection, a collection of historic photographs, newspaper clippings, etc., featuring such events as—



This new "combined motor fire engine and hose cart" was one of the very first in the New York Fire Department, and it is interesting to note that in a newspaper article published as late as Feb. 3rd, 1909, in which this job was illustrated, the heading read: "OFFICIALS SAY METROPOLIS WILL SOON HAVE HORSELESS FIRE DEPARTMENT."

The gentleman standing on the extreme left at the rear of the truck is Mr. Frederick Shepperd, for so many years publisher of "Fire and Water Engineering"; the gentlemen on the seat are Mr. D. A. Woodhouse, President of the Woodhouse Mfg. Co., Inc., and Mr. A. C. Webb, the designer of the apparatus.

Our First Ad (reduced size)

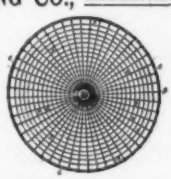
D. A. WOODHOUSE MANUFACTURING CO., Manufacturers.

Life Nets! Life Belts! Fire Escapes!

Woodhouse Couplings,
Woodhouse Mending Sleeves,
Woodhouse Siamese Outfits.

FIRE EXTINGUISHERS.
Send for Illustrated Catalogue.

12 Barclay St., New York.



Cotton and Rubber Fire Hose
Steel Clad Suction Hose, Linen Hose.

HOSE JUMPERS,
HOSE SPANNERS,
HOSE and LADDER STRAPS.

Siamese and all kinds of Play-Pipes.

Our Present Line Includes

Motor Fire Apparatus
Fire Hose
Hose Carts
Victor Gas Masks
Ladders
Reels, etc.,
Underwriter's Fire Equipments
Fire Extinguishers
Chemical Engines
and all fire department supplies and equipment.

WOODHOUSE MFG. COMPANY, INC.

D. A. Woodhouse, Pres., Geo. J. Kuss, Vice Pres.

156 Chambers St., New York

the Chemical Warfare Service has produced a type of gas mask called "Universal" and a less complicated form called the "Firemen's" which will protect against any of the substances ordinarily encountered in fighting fires. The Universal consists of a mask similar to the army type, covering the entire face with a short hose leading to a canister. These canisters may be replaced after they are used up. They contain a filter of cotton padding for removing particles of soot and tar, dry activated charcoal which absorbs the various organic vapors such as carbon tertachloride, anilin, benzine, alcohol and the like; caustic soda which absorbs chlorine, hydrochcloric acid, nitric oxide, sulphur fumes and water vapor; then a layer of calcium chloride which serves to absorb water vapors, and finally a substance called hopcolite which is a mixture of the oxides of manganese, copper and cobalt, which acts on the carbon causing it to take up oxygen and change it to harmless carbon dioxide. Finally, there is a layer of silica gel which is used to absorb ammonia fumes. The canister of the Firemen's gas mask contains exactly the same material as does the Universal, but in smaller amounts, so that the mask may not be used quite so long. The total time which the Firemen's gas mask may be used is four hours, and it will serve to protect against all the gases including carbon monoxide and ammonia. With this mask a fireman may work for several minutes without danger in a room, cellar or trench flooded with illuminating gas. Moreover, the canister does not fail suddenly but gradually, so that the man wearing it when it becomes exhausted is able to escape with its help before being overcome. Another point is that of temperature. The canisters are more active when warm, so that in cold weather they should be worn under the coat to receive body heat. Careful record should be kept of the length of time each canister has been in service. Sealed canisters are now on the market so that there will be no deterioration due to exposure to the atmosphere during storage. There are a number of firms that make a business of furnishing gas masks of this type. In any case, it is well to insist that the manufacturer obtain from the Bureau of Mines experiment Station in Pittsburgh a certificate as to the efficiency of the canister for the gases which it is intended to protect against.

In the absence of gas masks, or even with their use, there are several points of great importance to the firemen so far as their safety is concerned. First of these is adequate ventilation. The experience of practically all fire departments has shown that a fire may be more readily attacked and localized if it is well ventilated. Adequate ventilation protects the firemen from high concentrations of smoke and poison gas, and largely eliminates the danger of hot air explosions.

It is hardly necessary for an outsider to remind a fireman that there is generally a stream of relatively pure air coming in along the hose lines and that often near the floor there is clear cool air, while a little space above the floor all is filled with smoke and choking gas. The most primitive type of gas mask is probably the wet cloth placed over the nose and mouth, and in a pinch this is very useful.

There is one characteristic of ammonia fumes that deserves particular attention. It is that ammonia will attack the skin particularly if any moisture is present on it. Therefore it is very important in going into an atmosphere charged with ammonia to be sure that the skin and clothing are dry, and it is a good plan on coming out if there is the least sign of irritation to wash the irritated skin with a half and half mixture of water and vinegar. For more severe ammonia burns the picric acid treatment is probably the most successful.

Antique Fire Apparatus Wanted

In connection with elaborate preparations for its Century Old Celebration to be held next April, the City of Columbus, Ga., is anxious to procure the loan of several old hand fire engines dating back to the old days. Any of our readers having such apparatus available or knowing where it can be gotten will confer a great favor upon Commissioner H. C. Smith of Columbus, by communicating with him direct. Commissioner Smith is Chairman of the Committee in Charge.

Any apparatus loaned for this occasion will receive the best of care and will be returned promptly after the celebration. The shipping and all other necessary costs will of course be defrayed by the Committee.

Tivoli Theatre Not Located in Detroit—In a previous issue the $40,000 fire loss in the Tivoli Theatre was credited to Detroit, Mich. Paxton Mendelssohn, prominent Detroit fire fan, has written in to say that the theatre is located in Highland Park. It is regretted that the error has crept in.

Supt. Bailey a Popular Officer

One of the most progressive and popular fire department officials in New England is Winfred Chester Bailey, superintendent of high pressure, steam and marine service of the Boston Fire Department.

Supt. W. C. Bailey

He was born in East Boston on October 5, 1877, and received his early education in Oakgrove Seminary, Vassalboro, Me. He entered the Boston Fire Department on December 10, 1902, and was assigned to Engine Company No. 10. He served with Engines 15, 1, and 22, being promoted to assistant engineer in 1903, and to engineer in 1914.

He attended the fire engineering school class of Supt. Eugene M. Byington and received commendation in general orders for conceiving the idea and demonstrating the practicability of an equalizing device for use on the brake system of Christie front drive tractors.

On October 13, 1920, Mr. Bailey was appointed engineer in charge of high pressure and instructor in the operation of high pressure hydrants. Upon the retirement of Supt. Byington in 1926 Bailey became superintendent of high pressure, steam and marine service, standing at the top of the list in a civil service examination.

In 1920 Supt. Bailey was sent to New York City to make a study and report on the high pressure system of the Borough of Manhattan. He now has active charge of the Boston high pressure fire system and supervision of all fireboat repairs.

HARRY BELKNAP.

Chief Noll of Poughkeepsie, Re-Elected

Chief Chris W. Noll of Poughkeepsie, N. Y., and active in the affairs of the Hudson Valley Volunteer Firemen's Association, has been re-elected chief of the department. His election was not contested and the matter of balloting was just a mere formality.

At the last election, Chief Noll was also unopposed for the office and that voting was too a matter of form. Ballots are taken for the office of chief every two years and active or exempt firemen are entitled to vote.

Chief Chris W. Noll

Chief Conner of Mason City Honored

Members of the Mason City, Ia., department arranged a dinner to honor Chief T. L. Conner who retired on December 1 after thirty years service. He will be succeeded by Chief Dan Shire of the Rock Island Arsenal fire department.

Chief Conner entered the service on July 18, 1896, and he has worked hard to raise the standards of the department. In 1906 he became chief. He has seen many changes in the thirty years that he was a member

HEWITT - GUTTA PERCHA
RUBBER CORPORATION

GENERAL OFFICE AND FACTORY, BUFFALO, NEW YORK

CABLE ADDRESS HEWRUBBER

REG. U.S. PAT. OFF.

MECHANICAL RUBBER GOODS

December 1st.
1 9 2 7

Fire Engineering,
New York City.

Gentlemen,

The occasion of your Golden Anniversary carries us back to the early days of our Maltese Cross Fire Hose advertising in your good paper. Here is an ad that we ran with you back in 1880,- forty seven years ago. You were then three years old, we twenty three.

BENJ. P. SMITH, TREASURER. A. SPADONE, PRESIDENT.

The Gutta Percha and Rubber Manufacturing Co.

More than one million and a quarter feet sold since 1870.

SEMPER TRADE MARK. *PARATUS.*

This Hose can be relied on for long and efficient service.

Patent Improved Carbolized Steam Fire Engine Hose,

MADE EXPRESSLY FOR FIRE DEPARTMENT USE.

THE MALTESE CROSS BRAND HOSE

IS USED IN ALL THE PRINCIPAL CITIES IN THE UNITED STATES AND CANADA.

THE MALTESE CROSS BRAND of Rubber Hose is acknowledged to be the most economical Hose for Fire Departments. Its great strength and durability are needed, and it is *always ready for use*, requiring no extra care, no appliances to dry it after use are necessary, and only one-half the quantity is required compared with other hose, which has to be thoroughly dried after every fire.

Our patents are for processes, treating the rubber and duck used in the manufacture of the MALTESE CROSS HOSE with the best anti-septic CARBOLIC ACID, which effectually preserves the duck from mildew and rot, making it the *most durable Hose in the world.*

WE FULLY WARRANT AND GUARANTEE THIS HOSE.

Maltese Cross Suction Hose, for Fire Departments, a Specialty.

PRICES AND SAMPLES FURNISHED ON APPLICATION
P. O. Box 485.

THE GUTTA PERCHA AND RUBBER MANUFACTURING CO.,
No. 23 Park Place, New York.

What our advertising said in 1880, the largest users say for us today. "Maltese Cross Carbolized Fire Hose is the most durable hose in the world". Only the other day a length was returned to us for examination after 36 years of service.

Today the sphere of Maltese Cross Fire Hose usefulness has been extended from fire department service to mines, oil refineries and other industrials. Today the sphere of Fire Engineering influence has been likewise broadened. We share with you the meaning of the words appearing with our trade mark,"Semper Paratus" or "Always Ready". Fire Engineering and Maltese Hose are always ready and both have long made good.

Yours with congratulations,
Hewitt-Gutta Percha Rubber Corporation.

F. E. Miller
Vice Pres.

of the fire department—changes from the old horse drawn equipment to the present motorized apparatus.

Chief Conner was presented with a gold badge and voted a life member of the local union, International Association of Fire Fighters. He was urged to come around to visit his old comrades and to play games with them as he had in the past.

Ex-Chief John P. Quigley Dead

There passed away at Syracuse, N. Y., on December 4, suddenly, one of the prominent chiefs of two decades ago, Ex-Chief John P. Quigley, of the Syracuse, N. Y., Fire Department. Chief Quigley had been identified with the Fire Bureau of Syracuse until his resignation from the time it was formed into a paid force in 1878, the date of his joining being May 4 of that year. He was appointed chief when Chief Henry Riley died in 1905, and served until April 2, 1914. In the early part of that year the chief had taken an examination for the position of inspector of the division of industrial hygiene of the New York State Department of Labor, and had, without any previous preparation, received a rating of third position. In April 2, 1914, he was appointed an inspector and resigned as Chief of the Syracuse Fire Department. He served with the state department for five years as fire prevention expert.

The Late John P. Quigley, Ex-Chief of Syracuse and Former President of I. A. F. E.

Chief Quigley was elected president of the International Association of Fire Engineers at its twenty-seventh convention in Syracuse on August 21 to 25, 1899. Referring to this fact, *Fire and Water* said, in its issue of September 2, 1899:

"John P. Quigley, who was elected president of the International Association of Fire Engineers last week is one of the youngest chief engineers in the fire service and probably with one exception the only chief elected to this high position in the second year of his new office. Chief Quigley is one of those men who is periodically bound to come to the front. He is active, intelligent, painstaking, and withal an aggressive and competent fireman. The association is to be congratulated upon having elected so capable a presiding officer and Syracuse must be proud of possessing a public officer who is bound always to be credit to her."

On the tenth anniversary of his appointment of Chief of Syracuse March 30, 1907, John P. Quigley was presented with a handsome badge. A description of this event was given in *Fire and Water Engineering* of April 6, 1907, as follows:

"Chief John P. Quigley having been for ten years head of the Fire Department of Syracuse, N. Y., his subordinate officers and men determined to show their appreciation of him as a commander and a veteran fireman. They accordingly subscribed for and purchased at a cost of $350 a very handsome solid gold diamond studded badge about two inches in diameter. At the top is a flying eagle; in the center the insignia of the department—water hydrants in the form of a star. Round this in horseshoe shape and in blue enamel is the inscription: 'Syracuse Fire Department.' Beneath in large raised letters in gold is the word 'Chief.' On the reverse of the badge is the inscription: 'Presented to John P. Quigley, Chief of the Syracuse Fire Department by the members thereof as a token of their regard and esteem, March 30, 1907.' Every man in the fire department contributed to the badge."

Pioneer Co. to Represent Ahrens-Fox

The Pioneer Fire Equipment Company, owned and controlled by J. Ed. Schmitz, Sr., and his son, Ford A. Schmitz, Dallas, Tex., has been appointed Southwestern Representative, of the Ahrens-Fox Fire Engine Company, Cincinnati, Ohio. The field to be covered by this company comprises the states of Texas, Oklahoma, Arkansas, northern part of Louisiana and possibly other territory adjacent thereto. The office, showroom and service station is located at 3600-3610 Commerce Street, Dallas.

The Pioneer Company has been prominently identified with the fire apparatus business in the Southwest for many years and the men at its head are well and favorably known to the fire chiefs throughout the territory they represent.

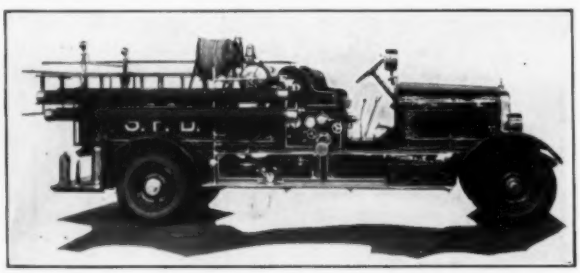
J. Ed. Schmitz, Pioneer Fire Equipment Co.

Taft, Cal., Installs New Siren Fire Alarm

The city of Taft, Cal., recently installed a new Siracode fire alarm system, and a test conducted under the supervision of R. R. McClure, General Manager of the Siracode Signal Corporation, San Francisco, was according to advices from Chief William Wilson, of the Fire Department, successful.

New Foam Extinguishing Apparatus is Tested in Philadelphia

The illustration shows 1,200 gallons of naphtha oil in a tank ignited and with the foam just beginning to take effect. The blanket of foam quickly extinguished the blaze. The chemicals are made by the National Fire Protection Company, Philadelphia, and are in powder form, the system consists of two ejectors of special construction, into one of which is placed chemical "A" and into the other chemical "B." Each chemical goes into a separate stream, which can be run to any desired distance before uniting the two solutions. No chemical reaction takes place until the two streams are united. When this is done, a foam is formed which is effective in extinguishing oil and other similar fires.



New FWD Pumper on the Market

The apparatus shown in this illustration is a new Four Wheel Drive 750-gal. pumper recently placed on the market. It is equipped with 1,200-foot capacity hose body, 40-gal. chemical tank, 12 and 24-foot ladders, and chemical hose reel with capacity of 250 feet ¾-inch chemical hose. The apparatus has a speed of 50 miles per hour.

In and out — *without delay!*

"Automatic" Electric Door Equipment Solves the Problem of Fire Station Entrances

Safety

Speed

Comfort

Reliability

NO MORE returning to cold buildings or flipping apparatus. The push of a button at instrument stand or pull of a cord over driver's seat opens doors in 5 seconds. The doors close automatically as apparatus leaves the fire station.

Write for descriptive literature on installation in old and new buildings. Also ask for circular on "Automatic" Ball-Bearing Off-set Hardware—a sure cure for sagging, sticking doors.

AUTOMATIC POWER DOOR MFG. CO., Inc.

Factory and General Offices

3440 N. Kimball Ave., Chicago, Ill.

REPRESENTATIVES IN ALL PRINCIPAL CITIES

WHAT SOME OLD-TIME READERS THINK OF "FIRE ENGINEERING"

Opinions from Chiefs and Others Who Have Read the Paper Over Varying Periods of Years, Mostly Long—Great Improvement Noted

THE following letters just received are notable, not only for their uniformly commendatory tone, which naturally is very gratifying to the Publishers of FIRE ENGINEERING, but principally for the long period of years during which many of the writers have been subscribers to this journal. Incidentally, this fact speaks well for the continuity of service among heads of fire departments throughout the country:

Chief Frank B. Ranby, Dayton, Ohio:

"I have been a constant reader of your FIRE ENGINEERING during my entire lifetime as a Fireman and Chief, a period of 47 years. Have always found same to be very instructive and helpful and wish you continued success in the field which you have served so effectively."

Chief George M. Kellogg, Sioux City, Iowa:

"FIRE ENGINEERING is fifty years old this month. I have read FIRE ENGINEERING thirty-eight years. It has kept abreast of the times and has been a great educator. I would be lost without it. Please accept my congratulations for the success that you have made of FIRE ENGINEERING."

Mrs. Frank G. Reynolds, Widow of Former Chief of Augusta, Ga.:

"For the thirty-eight years that FIRE ENGINEERING has been coming into my home it has made wonderful strides. The magazine tells us what all parts of the world are doing, keeps us in touch with what we should know of fire hazards in different cities and just how to handle them. The magazine is somewhat like a real text book in our line. FIRE ENGINEERING tells each one just what the other fellow is up against. It has been useful, also, with its instructions in handling chemicals as well as hose, and other fire fighting matters. FIRE ENGINEERING is one magazine you cannot tire of and one is always looking for its delivery. To the real Fire-Eater it is very interesting and instructive."

Chief Charles Andrews, Ann Arbor, Mich.:

"The city of Ann Arbor has taken your journal for thirty-five years and it has kept pace with many things in the fire business. I can't see just how one could get along without it—with everything new presented and the different opinions on fighting fires which you print."

Chief Daniel E. Johnson, Bridgeport, Conn.:

"Congratulations to FIRE ENGINEERING on its fiftieth anniversary! Many changes in the manner of fire fighting have taken place since the cradle days of your now modern publication and there isn't the least bit of doubt in my mind but what you have been on an even tenor with the progressive march that time has brought in the fire protection field. I have been reading FIRE ENGINEERING for the past 30 years and have watched with interest the many changes that have taken place since that time. FIRE ENGINEERING can be classed as 'The Big Parade' of firemanic publications and its semi-monthly call at my desk is always welcome. Your timely presentation of articles pertaining to the doings of our hundreds of fire departments throughout the country and the illustrations that appear in FIRE ENGINEERING have no comparison.

All Will Rogers knows is what he sees in the papers. All I know about other fire departments is what I read in FIRE ENGINEERING. My best wishes to you for the next fifty."

Chief Louis Behrens, Charleston, S. C.:

"I have been a subscriber to your paper for more than twenty-five years, along with many other fire journals, and a perusal of your paper, FIRE ENGINEERING, will convince almost any one that you are publishing the leading paper in your line. Best wishes for continued success.

George W. Booth, National Board of Fire Underwriters:

"My recollection does not go back fifty years, but I have been reading your publication for nearly twenty-five and have been much pleased to observe its progress especially during the past few years of that time. There has been very marked improvement as respects the scope of its contents, the method of preparation, and the general quality of your publication. Best wishes for your further continued success."

Chief Frank Clark, Belvidere, Ill.:

"I have been a member of the fire department since 1903 and have read *Fire and Water Engineering* and FIRE ENGINEERING most of that time. I hope to read it as long as I stay here, as I find a heap of good reading in it. Here's hoping you keep it up fifty years more."

Chief C. W. Royce, Joliet, Ill.:

"In looking over my record I find that FIRE ENGINEERING has been on the chief's desk for the last twenty years. We always look forward to the delivery of this very interesting magazine."

Chief Charles H. Fuller, Pawtucket, R. I.:

"I have been a subscriber to FIRE ENGINEERING for the past thirteen years and have always found it very interesting. I think that the greatest improvement in all this time was the change from *Fire and Water Engineering* to FIRE ENGINEERING. It has always been good reading but since the change to straight fire department subject, I have found it more so."

Chief David M. Hudson, Chelsea, Mass.:

"It is a great pleasure to have the opportunity to present my best congratulations on the fiftieth anniversary of FIRE ENGINEERING. I have been a close reader of FIRE ENGINEERING for about sixteen years and have during that time received much valuable instruction from its many educational articles on fire protection and fire prevention. I believe FIRE ENGINEERING has been instrumental in bringing forward many of the most important improvements in the advanced fire service of today."

Chief Joseph W. Wilks, Vicksburg, Miss.:

"I have been a constant reader of FIRE ENGINEERING, for a number of years, and have found some useful information, pertaining to the fire-fighting business in it. The Editorals, and problems are very beneficial in keeping up with modern times. Here is wishing you good luck and prosperity on your fiftieth anniversary, and that your progressive journal will have the pleasure of celebrating its one hundredth anniversary in the year 2027."

Chief John M. Evans, New Orleans, La.:

"Permit me to extend to you my congratulations on the fiftieth anniversary of FIRE ENGINEERING. I have been a reader of FIRE ENGINEERING for a number of years, and enjoy the splendid articles that have been published from time to time. I sincerely hope that FIRE ENGINEERING will continue to advance as it has in the past. The members of this department join me in congratulating FIRE ENGINEERING."

Chief Henry H. Heitman, Waterbury, Conn.:

FIRE ENGINEERING has my congratulations in the celebration of its fiftieth anniversary. In its half century of life this well known publication has seen the fire department grow from its early days of hand drawn apparatus to horse drawn, only to be later superceded by the automobile, and during this period, also, it has seen the fireman come back to life by the adoption of the two platoon system. When I look back, my wonder is that any city was able to get men to be on permanent duty for 24 hours. I doubt if it could be accomplished today. FIRE ENGINEERING is a good publication for all fire departments; it keeps you well informed, and when you are well informed, you are sure to be up-to-date in matters that are for the betterment and uplift of your department. Here in Waterbury FIRE ENGINEERING is distributed to all stations, and is read by nearly the entire personnel of the Waterbury Department. To the owners and publishers of FIRE ENGINEERING I extend the friendship of the Waterbury Fire Department, and wish for them a continued increase in the circulation, and advertising medium."

Franklin Fire Company No. 1, Chester, Pa.:

"We have seen how FIRE ENGINEERING has grown and it is very interesting to note what good we get out of it. The members of this company would not be without it, although we are only a volunteer company. We certainly look forward to receiving FIRE ENGINEERING as it helps us to learn what the other companies have to put up with in the line of fighting fires. We wish you success for the coming year and many years to come on this your fiftieth anniversary."

Chief Robert A. Knighton, Guelph, Ont.:

"I would certainly be remiss were I not to wish you many happy returns of the day on this your fiftieth anniversary. Changes there may have been, but allow me to say that during my years of acquaintance with Fire and Water Engineering and afterwards FIRE ENGINEERING, I have never been disappointed in any inquiry I have made of the publication as to opinions upon any subject bearing upon my calling. The information I have derived from FIRE ENGINEERING has to me been invaluable."

Echo Hose, Hook and Ladder Company, No. 1, Shelton, Conn.:

"We have taken your publication for many years and deem it one of our best and most instructive magazines of its kind. We heartily recommend it to any fire fighting organization."

Chief E. J. Stewart, Topeka, Kan.:

"FIRE ENGINEERING has always been a leader in promoting new ideas in fire protection and has done a great deal in raising the standards in fire departments. Fire-fighting has now become a profession and such mediums as your journal deserve credit for what they have done and the progress that has been made. We enjoy reading your magazine."

Chief J. T. Mertz, Akron, Ohio:

"I take great pleasure in sending hearty congratulations and best wishes. It must be great joy to you knowing this month marks the fiftieth anniversary of FIRE ENGINEERING. You have much to feel proud of; due to the fact that your FIRE ENGINEERING is considered the leading journal of the Fire Protection Profession, even with the tremendous changes that have taken place during this epoch-making period. Your FIRE ENGINEERING stands out as the most progressive and instructive journal published on matters relative to fire service. I wish you fifty years of further success."

Chief H. J. Callahan, Ft. Dodge, Ia.:

"In my estimation FIRE ENGINEERING is indispensable to the man who wishes to keep abreast of the times in the field of fire control. FIRE ENGINEERING grows bigger and better as the years go by and more consistently so since the consolidation. I extend congratulations and best wishes on this your fiftieth anniversary."

E. L. Brand, Edwin L. Brand Properties, Chicago, Ill.:

"I have been a subscriber of FIRE ENGINEERING for a good many years and have always considered it the best magazine published, devoted to fire extinguishment and fire prevention. To any one interested in these topics either as a member in the Fire Service or non-professionally, the magazine is a source of valuable information on all modern methods, appliances, etc. During the half century that has passed, FIRE ENGINEERING has always been a leader in giving to its readers the latest ideas relating to fire extinguishment and fire prevention. I congratulate FIRE ENGINEERING on its fiftieth anniversary, and wish for it in the future the same continued success it has enjoyed in the past."

Congratulations
to Fire Engineering!

FOR over thirty years you have been a great help and inspiration to me. Congratulations and best wishes to you on this, your anniversary of fifty years of wonderful service to Fire Protection.

G. E. MORLEY

MORLEY SIGNAL ENGINEERING, INC.
Originators and Distributors of the New Dualarm Protective Signaling Systems
4612 Woodward Ave., Detroit.

COMPLETE PROTECTION
for the smaller Communities

Double Head Siren (Little Giant) with Automatic and Remote Control and Street Box.

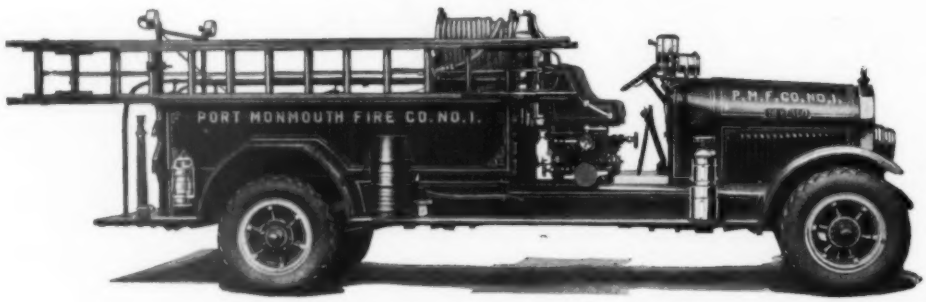
For small communities (up to 500) and for localized areas of large cities, the Sterling Little Giant (double head) gives complete protection. Under average weather conditions the double head can be heard up to one half mile. The ideal alarm for the smaller industrial plants. Also extensively used for advance traffic clearing over large areas.

Write for Circular No. 623, describing this system

STERLING SIREN FIRE ALARM CO. INC., 61 Allen St., Rochester, N. Y.

STERLING

Buffalo Type 50



Speaks For Itself In
Construction — Service — Power

Write for Detailed Specifications

BUFFALO FIRE APPLIANCE CORP.

44 Central Ave., Buffalo, N. Y.

City Service Hook and Ladder Apparatus

COMBINATION LADDER CO., INC.
381 FOUNTAIN STREET, PROVIDENCE, R. I.

We'll send bill

Pay within 90 days

We'll hold the dog

Name .....
Position .....
Address .....
.....

while you run get your pen and sign on the dotted line. You'll thank us for letting you subscribe!

26 issues (a full year) for $3.00

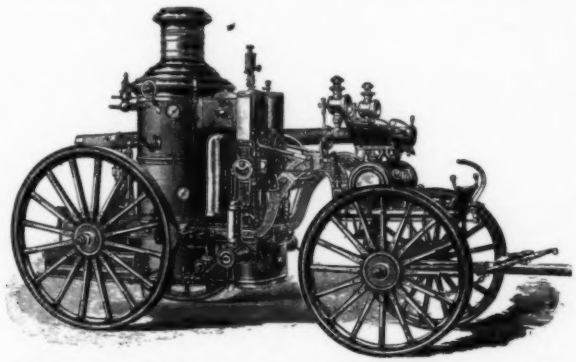
FIRE ENGINEERING,
225 West 34th St., New York, N. Y.

Genesis of Modern Fire Apparatus

(*Continued from page* 1252)

closed wooden barrel containing considerable quantity of water and a tin case of gunpowder was placed in the center. When the powder exploded, water was thrown in every direction. There were many novel ideas which did not work out so well in actual practice.

Although it is generally believed that Ericsson constructed the first fire engine, this impression is erroneous. He drew the plans



Modern Type of Clapp and Jones Engine Built About 1862

for which he was awarded the prize, but he never built the apparatus.

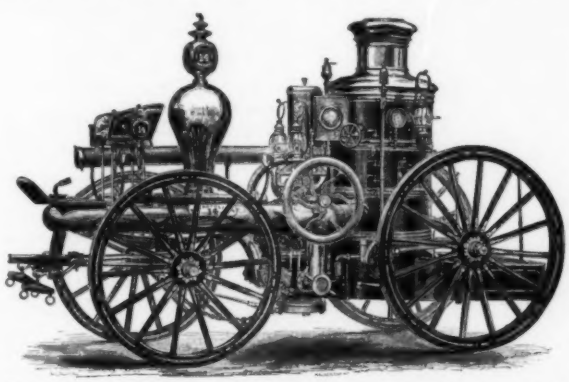
Moses Latta of Cincinnati, Ohio, is credited with the honor of inventing the first successful steam fire engine in 1852. The experimental machine had 8-inch steam cylinders and a two-foot stroke with a 4-inch Farnam hand engine pump. The boiler was constructed of coiled gas pipe and the wheels were taken from an old hook and ladder truck. Following the experimental tests, the city council was so impressed with the engine that they ordered Mr. Latta to build a machine for Cincinnati. It is interesting to note that one of the modern makes of apparatus is still being built in that city.

The Latta machine weighed 22,000 pounds and required four horses, ridden artillery fashion, to propel it, in addition to whatever traction was furnished by the machine itself.

Firemen Oppose Invention.

Volunteer firemen's organizations of that period were strong political rings. They resented the introduction of steam fire apparatus. In fact, the inventor believed that his machine would never receive a fair work out. But it did, and the machine was declared to be a wonder. At an official trial, when the machine was shut down, the boiler blew up at 180 pounds pressure and killed the engineer.

Besides the Latta apparatus there was the Abel Shawk machine



Amoskeag, Single Pump, U Tank Engine Assembled in 1860

also made in Cincinnati, and the Joseph L. Lowry apparatus made in Pittsburgh, Pa., in 1854.

Silsby Fire Apparatus

The first Silsby machine resembled a Mississippi river steamboat. It weighed 9,500 pounds. The apparatus was named "Neptune" and was exhibited the the Crystal Palace in New York city in 1856. This machine was never sold or placed in service.

M. R. Clapp who later designed the Clapp and Jones engine, and Birdsall Holly, inventor of the rotary steam cylinder and pump, were in the employ of the Silsby firm. The next steamer that was built by this company was sold to Chicago in 1857 for $5,000. Many improvements had been made in the original design, and there is scarcely an old-time firemen that has not had first hand experience with this type pumper.

The firm consolidated with Button of Waterford, New York and Clapp and Jones of Hudson, New York and operated under the name of the American Fire Engine Company.

Amoskeag Fire Apparatus

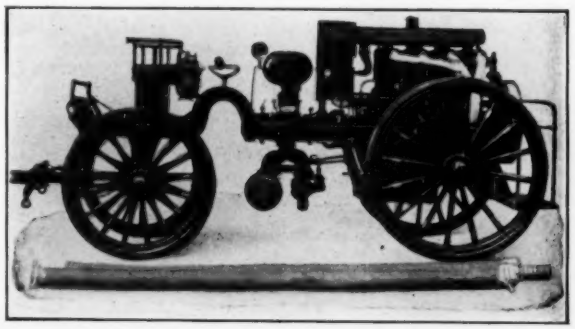
A number of fire apparatus concerns were organized but few became prominent. The first Amoskeag engine was designed by N. S. Bean in 1859. The steam cylinders were double and were attached to the boiler in a vertical position. The rotary pump was directly under the water and next to the boiler. The company had their factory at Manchester, N. H., and the first machine was sold to that city for $3,000.

This company made a number of improvements on the original design and in 1872 they started constructing self-propelling engines but they were not generally successful. The most powerful and heaviest was built for Hartford, Conn., in 1889. The height to the top of the smoke stack was nine feet, nine inches, and the machine was fifteen feet long.

The Clapp and Jones Pumper

Another of the successful fire apparatus builders of the period was Clapp and Jones of Hudson, N. Y. They started building steam operated pumpers in 1862 and the first machines were designed by M. R. Clapp. They were operated direct through piston rods.

The later model pumps were made from a composition of copper and tin. A leather packing made friction for the plunger.



Westinghouse Horse-Drawn, Gasoline Pumper in 1908

The pump heads were cages fitted with inlet and outlet valves. It is interesting to note that each succeeding design or manufacturer tried to make a lighter pumper. There was greater refinement in fire engine design.

In addition, L. Button of the Button Fire Engine Works at Waterford, N. Y., started making pumpers in 1862; the John A. Ives and Brothers and Ives and Son of Baltimore, Md., in 1864; R. J. Gould of Newark, N. J., in 1865; Hunneman and Company of Boston in 1866; Cole Brothers of Pawtucket, R. I., in 1867 and 1880.

Ahrens Successor of Latta

The works originally owned by Latta, the famous inventor, was sold in 1863 to Lane and Bodley. After building about eight machines from Latta's patterns they sold the business to the Ahrens Manufacturing Company who made improvements to the machine.

The engine was built on the Scotch-yoke style of movement. The pumps were double acting and very simple in construction. All parts that came in contact with water were made from gun metal. The largest size machine weighed 8,700 pounds. The steam cylinders measured 8¾-inch bore by 8-inch stroke; the pumps 5½-inch bore by 8-inch stroke.

This company consolidated with others as mentioned before into the American Fire Engine Company.

La France Fire Engine

The La France Fire Engine Company of Elmira, N. Y., starting building fire apparatus in 1875. The pumps were of rotary design.

The engines were built in five sizes and were capable of discharging from 350 to 750 gallons of water a minute. There was considerable discussion as to the respective merits of rotary and piston type pumps. This company therefore made both types.

Automobile Drawn Apparatus

Along about 1906 the first gasoline operated pumper appeared. This was a light affair without any hose body—merely a gasoline operated pump—the whole thing drawn by horses as was the old steamer. The first real automobile pumper as we know it today made its appearance about 1908. Automobile drawn hose cars and chemical apparatus were in service long before the automobile pumper was perfected.

Along this line it is interesting to note the following news item that appeared in our issue of October 28, 1908.

"The illustration is that of the automobiles in commission in Springfield, Mass. It comprises six machines of various types and is called the "flying squadron." The company (Knox) is now experimenting with an automobile which will be driven and water pumped by the same motor, with gratifying results, and it is expected that it will soon be so perfected as to place it on the market."

Among the early manufacturers of automobile pumpers were Webb, Waterous, Knox, Robinson, American-La France and Seagrave. As the automobile received greater refinements in design, additional improvements were made in the pumper design.

The early pumpers were somewhat of a gamble. When they were taken out for a test, there was no telling just what would develop. Often many adjustments would have to be made before the machine finally went through the prescribed schedule in pumping and the other tests that were arranged. At the early conventions of the I. A. F. E., when some of the manufacturers submitted their pumpers in a competitive test, there were many that could not make the grade because of some mechanical defect that developed during the run.

Today the guess has been taken out of this work. It is with a rare exception that a machine will not deliver its guaranteed amount of water.

Pumps are now installed on both light and heavy built chassis depending on whether the apparatus is for town or rural service or for the exacting duties of congested value protection. Some pumps are even installed on motorcycles for forest protection or on the front of passenger type cars. They are also being installed on ladder trucks.

When manufacturers started building 1,000 gallon pumps, fire chiefs believed that that was the ultimate in fire protection. Now there are 1,400-gallon pumpers and the latest idea in pumper design is to have two pumps which can be operated as a multiple unit to build up excessive pressure for fighting fires at the top of the modern office buildings.

It is almost impossible to visualize that amount. A good idea of this quantity may be obtained by comparing it with the average bath tub containing about one hundred gallons of water and requiring three or more minutes to fill. But so many remarkable things have developed in recent years that the average person accepts such things as commonplace and fails to realize the many years of hard work and disappointments necessary before the modern fire pumper reached its present refinements.

Mack Trucks Use Fomon Equipment

Mack Trucks, Inc., working in cooperation with the American Fomon Company, Philadelphia, announced at a recent demonstration in Long Island City that they were prepared to cooperate in a very practical way in furnishing Mack fire apparatus equipped with the new Fomon continuous foam generator.

According to Mack they can now supply for local fire departments as well as for oil company protection foam equipment in almost any capacity for the production of foam, using the two dry chemicals of the Fomon principle.

Extensive tests have been made with the generator in use with various types of Mack apparatus, and plans are already under way for furnishing apparatus with the Fomon generator as standard equipment.

According to Mack and American Fomon officials generators will be available for either portable use or piped to the pumper. An improvement in the use of the generator is the addition of a booster tank on the apparatus, which supplies water for the operation of the generator while the regular hose lines to the source of water supply are being laid. By this means the new equipment may be put into use immediately upon arrival at a fire.

To demonstrate the new equipment in action Mack and American Fomon held a joint demonstration on Friday December 2nd, at which the extinguishing effect of the generator was shown. A pit containing 600 gallons of oil on top of water was ignited and allowed to burn for several minutes before the foam was applied. The fire was extinguished in approximately one minute.

An element of humor was injected, which at the same time clearly showed the efficiency of the Mack engineering staff.

While the fire was in full blaze awaiting the application of foam, the glare from the burning pit was reflected through the windows of the paint shop of the plant, some distince away from the blaze but in direct line with it from the engineering department, and members of that department, believing the paint shop to be afire, rushed in with hose lines and various types of fire fighting apparatus prepared to do battle.

In the addition of Fomon generators as standard equipment wherever desired, Mack fire trucks will carry Fomon extinguishers.

Plans are under way, it is rumored, for an all-foam apparatus for use in localities where the hazards are great, which can supply great quantities of foam through the use of larger generators as well as through equipping the apparatus with several portable generators.

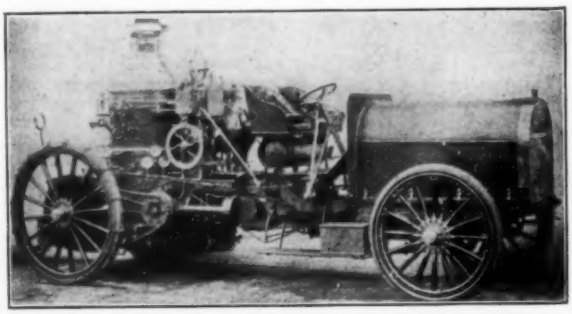
First Motorized Pumper in New York

Sixteen years back is not so very long ago!

In March, 1911, New York city received its first motor driven pumper—it was supplied by the Nott Fire Engine Company of Minneapolis, Minn.

The steamer was driven by a four-cyclinder motor. The differential gears were integral with the transmission and embodied in the same aluminum transmission case. The motor alone weighed 2,400 pounds.

When loaded the machine weighed approximately 16,000 pounds. The pumps could deliver 700 g. p. m. against a pressure of 150 pounds. The gasoline motor was more powerful than the steam operated mechanism. The crank shaft that weighed 185



Nott Pumper—First Motorized Steamer in Use in New York City.

pounds was cut from a solid piece of steel weighing 625 pounds. The crank shaft of an ordinary automobile of that period weighed sixty pounds. All the gears were cut from a solid block of chrome nickel steel.

The machine was tested at the Hudson river, not far from the department's repair shop, for one hour. The steamer delivered between 750-800 gallons a minute. The technical tests were in charge of Captain Demarest, at that time superintendent of repair shops.

The machine was sold to New York for $9,722 although the Nott Company said that it cost them nearly $20,000.

The apparatus had a guaranteed speed of thirty miles an hour but during the test, the average speed was forty miles an hour. Those who watched the test were as follows:

Chiefs George W. Horton, Baltimore; Fred Wagner, Washington; James McFall, Roanoke, Va.; Miles Humphreys, Pittsburgh; John Stagg, Paterson, N. J.; James McLaughlin, Norfolk, Va.; Edward Mooney, Bridgeport, Conn.; August Gerstung, Elizabeth, N. J.; Henry Klug, Creedore, N. Y.; W. W. Daggett, Springfield, Mass.; B. J. McConnell, Buffalo, and New York city officials.

Milford, Conn., Plans Fire Station—A meeting was held in Milford, Conn., to select a site on which will be erected a combined fire and police station.

Cleveland, O., Firemen Get Increase—Firemen in Cleveland, Ohio, received a fifteen per cent pay increase. The increase was financed by a 0.7 mill increase in taxation voted on by the people.

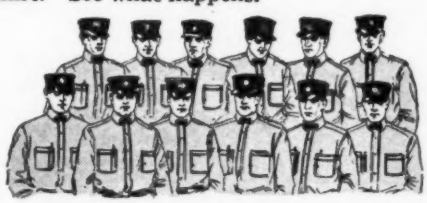
Redwood City, Cal., to Erect New Station—A new fire station may be erected west of El Camino Real in Redwood City, Cal. The city council authorized the purchase of some hose for the department.

?

IS THE SHIRT PART of the UNIFORM

Sometimes you wouldn't think so. For instance, the twelve men pictured below are all members of the same company in the same city in the same country. They're supposed to be uniform; they are—from the ears up.

Now take the same twelve men and put them into the same style and pattern of shirt. See what happens.



You ought to be convinced now that the shirt *is* really part of the uniform, and a very important part. Now let us show you how to buy uniform shirts.

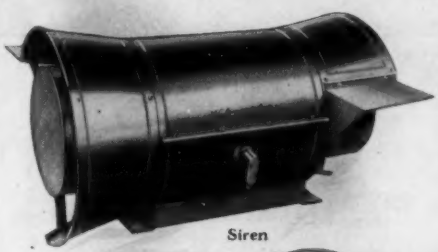
FOR BETTER APPEARANCE FOR ABSOLUTE UNIFORMITY

First, specify one style of shirt for entire department. The Signal two-collar shirt is the one to specify because it's dressy, long-wearing, practical, and wash proof. This style is now regulation in several American cities, and, if your department is not wearing it, you ought to find out more about it. Write us for particulars.

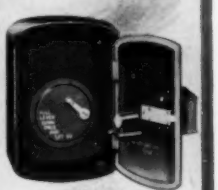
SIGNAL SHIRT COMPANY
M1 RACINE, WISCONSIN

Signal
REG. U.S. PAT. OFF.

Holtzer-Cabot Fire Alarm Systems for Small Towns



Siren



"M D"
Fire Alarm Station

ELECTRIC SIRENS
For Fire Alarm Signaling

In small towns where an unmistakable penetrating signal is required the Holtzer-Cabot Siren with its distinctive tone ranging from a deep guttural roar to a weird penetrating screech commands instant attention.

It has a sound penetration radius of about two miles in ordinary conditions.

Write now for specifications.

Fire Alarm Control Panel in Case

Manufacturers of Signaling Systems for over 50 years

THE HOLTZER-CABOT ELECTRIC COMPANY

125 Amory Street
Boston, Mass.

6161-65 So. State Street
Chicago, Ill.

BI-LATERAL FIRE HOSE

THE BI-LATERAL FIRE HOSE CO.
230 West Randolph St., Chicago, Ill.

If a hose salesman can convince you by any argument that his three-year guarantee will result in just as good an adjustment, should one be necessary, as a guarantee for six years, from a reliable company, certainly if you have a goat, he's got it.

BI-LATERAL FIRE HOSE is guaranteed six (6) years.

6 Patented Features

ERICK SIREN

Thorough Weather Protection
Erick Sirens do not clog up. Snow and ice cannot enter and stop sounding rotor. Completely protected and sheltered from outside influences.

Features That Prove Supremacy

Instant Alarm
Every telephone is a fire alarm station, permitting operator to sound alarm instantly, giving your fire department a chance to get the jump on the fire.

Universal Sound Projector
The Erick Sound Rotor and Deflector is built to instantly send a Fire Alarm.

Our Free Trial offer is made in all sincerity. We welcome your inquiry.

ERICK ELECTRIC SIREN CO.
STATE AND FILLMORE AVE., ST. PAUL, MINN.

MORSE
FIRE BOAT EQUIPMENT
Invincible and Callahan Nozzles

Fire Department Supplies
are in use throughout the country and giving unsurpassed service.

Every fire official should be fully acquainted with Morse equipment and have our catalog and other descriptive literature on file for ready reference whenever considering the purchase of new equipment.

You will find that it pays.

Write for Catalog

Andrew J. Morse & Son, Inc.
221 High St. Established 1837 Boston, Mass.

"Pirsch" Builds Complete Line of Motor Apparatus
Let Us Submit Bids on Your New Apparatus
Catalogue No. 16 Now Ready! Send for it.

PETER PIRSCH & SONS CO.
Since 1857
Kenosha, Wisc.

HAHN
Motor Fire Apparatus

Write for literature and prices on our 250, 350, 500 and 750-gallon triple combinations, chemical and hose combinations and city service trucks.

Hahn Motor Truck Co.,
Hamburg, Pa.

HALE PUMPS

LONGER effective life, higher efficiency and greater freedom from trouble may be had by using Hale Dreadnaught Fire Pumps.

HALE FIRE PUMP CO.
Conshohocken, Pa.

The made to measure and to fit

"Famous Kalamazoo" Firemen's Uniforms

Wear Longer and Look Better—but Cost no More.

Try one and you will always wear them.

The HENDERSON-AMES CO.
KALAMAZOO, MICH.

When in the Market for New Equipment

please write us and we shall be glad to have the right manufacturers provide you with complete specifications and prices for your consideration. This service won't cost a cent nor place you under any obligation whatever. We just want to cooperate both with you and with manufacturers in every possible way.

FIRE ENGINEERING
225 W. 34th St., N. Y. C.

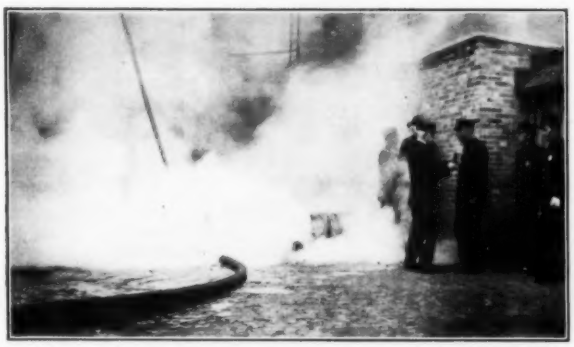
New Smoke Eater Demonstrated

A demonstration of the new smoke eating machine or smoke pump of the Boston Fire Department was held in the yard at headquarters on Bristol Street, Boston, Mass., to show its value.

The device consists of a motor operated hydraulically and a fan connecting to a section of sheet metal pipe. The effect is to suck smoke or gas out of a cellar and allow firemen to enter.

In the test, at which the pictures were taken, a pile of waste paper was ignited in the small brick house in the headquarters yard which is ordinarily used for tests of gas masks.

The smoke pump was connected to a hose line and when



Chief Daniel F. Sennott and Others Watching the Test of the New Smoke Eater

placed in operation quickly drew the smoke out of the house, filling the yard and adjacent street with the smoke and fumes.

Fire Commissioner Eugene C. Hultman, Chief Daniel F. Sennott, District Chief Michael J. Teehan, and Edward E. Williamson, superintendent of maintenance, witnessed the test.

This smoke pump is somewhat similar to the one devised by Chief Edward F. Dahill, of New Bedford, Mass. It will hereafter be carried as part of the equipment of Engine Company No. 6.

HARRY BELKNAP.

Selection and Care of Apparatus

(*Continued from page* 1260)

is open to the objection that if a traffic jam does occur, all apparatus is tied up. One of the reasons that running card assignments include several pieces of apparatus is to provide for an accident to one or more pieces of apparatus or its becoming tied up in traffic so that one of the objects of having several pieces respond is defeated if the fire-lane method is adopted.

All Hose Carrying Apparatus Should Have Pumps

In order that the best and most reliable service may be secured, all hose-carrying vehicles should be equipped with pumps. Even though the pressure under normal conditions in the water system may be ample to develop satisfactory hose streams throughout most built-up portions of the city or town, occasions are bound to occur where stiff streams are required to effectively extinguish the fire, and such streams cannot be brought up to their desired strength although the hydrant pressure may be from 50 to 100 pounds. In practically all water systems there are numerous dead ends, some of which may be of considerable length, and the friction loss in these long lines reduces the pressure under fire draft so that the hose streams are too feeble to project the water the required distance, and again, there are many instances where a building may be a considerable distance from a hydrant, and where it is necessary to lay out long lines of hose, the hydrant pressure is not sufficient to furnish an efficient stream.

A few pieces of apparatus known as "Four-Way Combinations" have been built during recent years. These consist of a ladder truck carrying a chemical tank equipped with a basket for carrying 2½-inch hose and provided with a pump of some 300- to 600-gallons capacity. Such a piece of apparatus is not adapted for large town and city service, but in the one-, two-, and three-company towns it fits in very well for it provides ladder service and makes additional 2½-inch hose available in case it is needed at the fire grounds, and provides a reserve in pumping capacity which may be needed in case of a large fire or when one of the regular pumpers is out of service.

Several years ago there was a considerable demand for large foam tanks. Such pieces of apparatus are expensive and can only be afforded by the larger cities. Today foam generators can be purchased at a very small cost, and in communities where large quantities of flammable liquids are stored, such equipment should be provided and sufficient powder kept on hand to combat a fire of considerable proportions. Today the best practice calls for each piece of major apparatus to be equipped with one soda-acid and also one foam-type extinguisher.

Importance of Hydraulics of Fire Streams

The functions of all fire apparatus and equipment are to get the fire force to the fire and provide means of getting water or the extinguishing medium on the fire; therefore, the problems connected with the hydraulics of fire streams are of particular importance to those engaged in the fire-fighting game.

We frequently hear the statement made that a fire stream was thrown 150 or 200 feet, and it may be true that the drops of water farthest from the nozzle were projected this distance, yet it cannot be considered that the stream at this distance had any effectiveness. A good stream is one which would enter through a window and barely strike the ceiling with force to spatter the wall, and which, at limit named, has not lost continuity of stream by dividing into a shower of spray, which at this limit appears to shoot nine-tenths of the whole body of water inside a 15-inch circle and three-fourths of it within a 10-inch circle. As a matter of fact, the maximum practicable height or horizontal distance which an effective stream can be thrown is about 100 feet. This requires a nozzle pressure of from 80 to 100 pounds. If attempts are made to carry higher nozzle pressures the increased projection of the stream is very slight for the first several increments of 10 pounds, and finally at about 150 pounds the velocity of water becomes so great that the stream is torn as it passes through the air, and the distance at which it is effective slowly decreases as greater pressures are developed at the nozzle.

The Pull-Back of a Hose line

The pull-back or reaction of a hose line is a subject with which most firemen are familiar. The question of pull-back or kick of the line is one which is frequently made the subject of argument in the fire station. Many firemen contend that there is much greater kick to the line when it is played against the wall or building than when the stream is directed through a window or opening in a wall. Such, however, is not the case for the reaction is the same in either case. A number of years ago when I was connected with the Boston Fire Department a series of practical tests were made in order to conclusively prove by visual methods what the reactions of hose streams were under varying conditions.

A frame was constructed to hold the nozzles and equipped with roller-bearings so that it would move freely. A recording spring-balance was attached to the frame so that the pull-back could be accurately recorded. A few figures will be quoted from the tests. With 66 pounds pressure at the base of a 1-inch nozzle the spring-balance recorded 90 pounds; with 61 pounds pressure at the base of a 1⅛-inch nozzle the spring-balance recorded 114 pounds; with 56 pounds at the base of a 1¼-inch nozzle the spring-balance recorded 134 pounds. These observations were taken with the streams directed into the open air. Similar observations were taken with the streams directed against a brick wall about one foot from the tip and identical readings were observed.

It is a very simple matter to calculate the pull-back on a hose line when the size of the tip and the pressure at the nozzle are known. It is done by multiplying the diameter of the nozzle in inches by the diameter of the nozzle in inches. This result is then multiplied by the pressure in pounds per square inch and the quantity thus obtained is multiplied by one and one-half. For instance, let us take a 1-inch nozzle having a pressure of 50 pounds. The pull-back is 1 x 1 x 50 x 1½.

McLeansboro, Ill., to Erect Station—A fire station will be erected in McLeansboro, Ill., on the site of the old station.

Fireboat Launched for Seattle, Wash.—A $275,000 fire boat has been launched in Oakland, Cal., for the Seattle, Wash., department. The Alki is a triple-screw boat and will replace the Duwamish. The Alki is of steel, 123.6 feet long, 26 feet beam and 11.6 feet in depth. She will have a maximum speed of eighteen knots an hour. The boat will be propelled by seven 350 h. p. Winton gas engines, six of which will be connected to the centrifugal fire pumps. There will be a hydraulic tower on the boat and a number of monitor nozzles. The pumps will have a combined capacity of 17,000 gallons a minute. All space on the boat will be used for fire-fighting equipment and the crew for the boat will be housed in quarters on the pier. Chief Mantor and other city officials attended the launching of the boat.

FIRE DEPARTMENT ACTIVITIES

Ceredo, W. Va., Has Purchased Apparatus—Ceredo, W. Va., has ordered a ladder truck.

Guymon, Okla., Installs Siren—The city of Guymon, Okla., on November 12, installed as a fire alarm a five h.p. Federal Electric Siren. T. S. Denison is Chief of the Fire Department.

Pumper Delivered to Americus, Ga.—A 750-gallon pumper has been placed in service at the central fire station in Americus, Ga.

N. Long Beach, Cal., Not to Have New Station—Plans for the proposed fire station for North Long Beach, Cal., have been delayed indefinitely.

Fire District to be Formed in Selma, Cal.—A rural fire protection district will be formed in Selma, Cal., and will include Clovis, Del Ray, Parlier, Reedly, Fowler and other communities.

New Fire Alarm Units Added in Lawrence, Mass.—Three new Gamewell punch recording alarm registers have been installed at the Central fire station in Lawrence, Mass.

Fire Apparatus Delivered to Hudson, Mich.—A new fire truck has been delivered to Hudson, Mich. The truck cost $3,500 and was purchased by voluntary subscriptions.

Pumper Delivered to Phillips, Wis.—A Seagrave triple combination pumper has been delivered to Phillips, Wis. The apparatus cost $6,500.

Fire Apparatus Delivered to Oglesby, Ill.—A Graham Brothers fire apparatus has been delivered to Oglesby, Ill. Two chemical tanks are mounted on the running board.

McKees Rocks, Pa., Will Not Purchase Apparatus—The council of McKees Rocks, Pa., has voted to get along with the fire equipment that the department has at present.

Covington, Va., Receives 1000-Gallon Pumper—An American-LaFrance, 1,000-gallon pumper has been delivered to Covington, Va., and has successfully passed the Underwriters' tests.

Fremont, O., Considers Apparatus Purchase—At the recent election in Fremont, Ohio, a vote was taken on the plan to issue $15,000 bonds for purchase of new fire department equipment.

Pleasantville, N. Y., Has New Station—A two-story fire station has been erected in Pleasantville, N. Y. A social hall and meeting place has been provided on the second floor of the building.

Relief Association Formed in Great Falls, Mont.—Incorporation papers have been issued to the newly formed fire department relief association of Great Falls, Mont. The association will have charge of dispensing pension money.

New Pumper Delivered to Eastport, Me.—Members of the Eastport, Me., department tested out a new Maxim 500-gallon pumper delivered to Eastport, Me. It has a seventy-gallon booster tank.

Dubuque, Ia., Raising Convention Funds—A ball was held in Dubuque, Ia., on Thanksgiving Day to raise funds with which to finance the coming convention of the firemen's convention to be held in June.

Canton, O., Has Truck for Small Fires—Fire department equipment mounted on a Ford chassis has been purchased for Canton, Ohio, so that Chief R. O. Mesnar will have apparatus for putting out small fires. There will be a forty-gallon chemical tank on the truck.

Cedar Rapids, Ia., Reduces Speed on Apparatus—Following a crash between two pieces of apparatus in Cedar Rapids, Ia., orders have been issued that the apparatus must not travel to fires faster than fifteen miles an hour in the business section nor at a speed exceeding twenty-five miles an hour outside of the congested area. Operating under these rules, the fire department arrived at a recent fire too late to save the building.

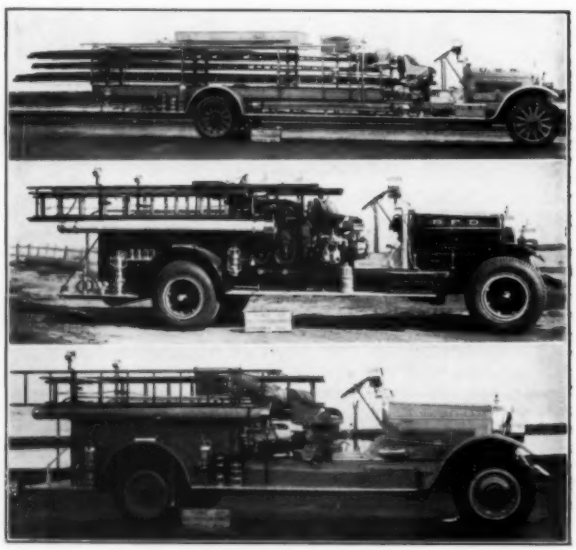
Fire Alarm System for Petersburg, Va.—A complete fire alarm and police signal system is being supplied for the city of Petersburg, Va., by the Harrington-Seaberg Corporation, Moline, Ill. This consists mainly of an 8-circuit fire alarm switchboard, 6-circuit police signal central officeboard, 3-battery racks and other central office equipment. There are to be 73 fire alarm boxes, 20 police boxes and 33 recall units.

Sixteen Towns in Texas Have Standardized—In conformity with the new state law, sixteen Texas towns have rechased their fire hose threads to conform with the National standard. The towns that have changed are La Grange, Flatonia, Schulenburg, Weimar, Columbus, Eagle Lake, Moulton, Gonzales, Shiner, Hallettsville, Yoakum, Fayettesville, Palestine Center, and San Augustine.

Alton, Ill., Making Survey of Section—Alton, Ill., is finding out how the nearby townships stand in reference to compensation for outside fire calls. Alton has been answering calls to districts outside of their limits and many of the calls have later been found to be for minor fires. The city has had to exercise its judgment as to the importance of the call for outside aid, and it believes that by charging for all outside calls, the difficulty will be solved.

Portland to Name Fire Boats After Chiefs—The three new fire boats being built for Portland, Ore., will be named after three men who lost their lives while in the employ of the fire department. The first boat to be launched will be the David Campbell, in honor of the fire chief who was killed in action on June 26, 1911. Another will be named after Mike Ladenklos, assistant engineer, killed on April 18, 1923. The third will be named after Karl Gunster, hoseman, who lost his life in an apartment house fire on June 15, 1921.

New York and New Jersey Cooperate—The New York and New Jersey fire departments have worked out a plan whereby the New York department will answer all fire alarms in the Holland Tunnels received from the East Bound (south) tunnel, east of the ventilating shaft in New Jersey and all alarms from the West Bound (north) tunnel to and including the river ventilating shaft in New York. The New Jersey fire department will answer all other alarms in the tunnel. Officers who may be called to answer alarms in the tunnels have been asked to familiarize themselves with the arrangement in the tunnels.



Three Recent Pirsch Deliveries

The three fire trucks illustrated in the above were recently delivered by the Peter Pirsch & Sons Company, Kenosha, Wis. The fourway ladder truck, chemical engine, hose wagon and pumper shown in the upper illustration has been accepted by the United States Navy for its Mare Island, Cal., Navy Yard. The apparatus, which was successfully tested by the Wisconsin Inspection Bureau, is equipped with 750-gal. pump, 600′ capacity hose body, 40-gal. chemical tank, and regular city service ladder equipment. The pumper shown in the central picture is a 750-gal. unit delivered to Belleville, Ill. It is equipped with two 70-gal. booster tanks, deluge set, etc. The lower illustration shows an intermediate 600-gal. pumper delivered to Johnson City, Ill., equipped with 40-gal. chemical tank. Both of these apparatus have also successfully passed Underwriters' tests.

The new Barton Pump is furnished fully equipped including suction connection with cap, siamese gated outlets and accurate pressure gauge, as shown. It can be driven by practically any make of car or truck. Here is adequate protection for any community, large or small, at surprisingly low cost.

200 Pounds Pressure

YOU can select a new Barton Fire Pump with utmost confidence, for in its class there is no finer equipment produced.

No other portable fire pump has the patented Barton power take-off, a direct and positive connection to the motor crankshaft. No other portable fire pump has the patented Barton automatic primer. No other portable fire pump has equal large capacity, nor equal ability to deliver at high pressures up to 200 pounds.

Centrifugal type, the new Barton handles water from any source—dirty or clean—under hydrant pressure or at suction. Wherever the fire, whatever the conditions you can use this pump.

It will pay you to investigate.

Write today for our Announcement Bulletin, giving specifications, capacities and complete details on this remarkable new pump.

AMERICAN STEAM PUMP COMPANY
BATTLE CREEK, MICHIGAN

Sales Offices in the Principal Cities

BARTON
New FIRE PUMP

Fatal Delays eliminated by this NEW THREADLESS COUPLING

National Standard Threadless Coupling Connected

CHIEF! WHY USE SOFT SUCTION?

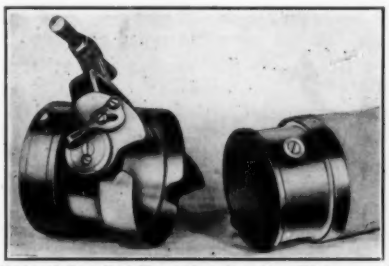
You know the weak points of soft suction as well as its advantages.

You know the superior value of hard suction.

Why not equip your pumper with National Standard Threadless Couplings, and command either hard or soft suction at will? If the soft suction fails, disconnect it and instantly connect up your hard suction. N.S.T.C. make this shift easily possible.

Be prepared for any emergency.

You need no alibi when equipped with National Standard Threadless Couplings.



National Standard Threadless Coupling Disconnected

SAVE TIME, LIVES AND PROPERTY!

Every efficiently managed fire department demands water in the least possible time.

The National Standard Threadless Couplings guarantee quick connection and speedy disconnection in emergencies. They are easily and quickly installed on any Pumper.

Get the jump on the fire with National Standard Threadless Coupling—the speedy shift-connecting unit.

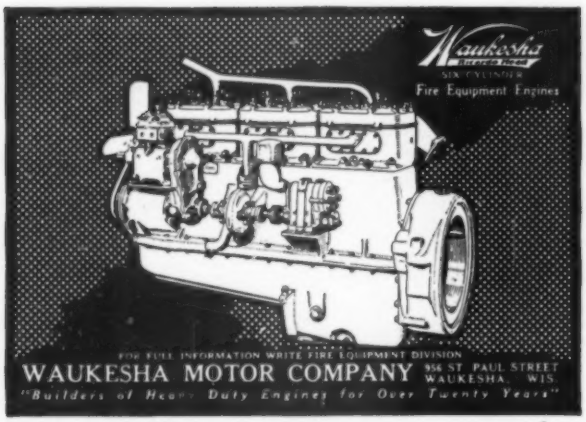
Write for descriptive literature.

Manufactured exclusively under patent rights by

NATIONAL STANDARD THREADLESS COUPLING CORP.

Manufacturers and Distributors of Threadless Couplings for Fire Engines, Oil Tanks and Trucks, Oilhose, etc.

Executive Office: 215-217 Beach 122nd Street,
ROCKAWAY PARK, N. Y.



BADGES

of Every Description

QUALITY GUARANTEED

Right Prices
Prompt Delivery

Write for latest catalogue and price list

EVERSON-ROSS CO.
88 Chambers St., New York

MAXIM FIRE APPARATUS

If your apparatus is Maxim-built it will prove dependable and reliable at all times.

Complete information upon request.

MAXIM MOTOR COMPANY, Middleboro, Mass.
Metropolitan Sales Agents:
The Woodhouse Manufacturing Co., 156 Chambers St., N. Y.

Clifton Salvage Covers

Are made of strong, heavy duck and lapped seams and are designed of such thickness and weight as to be light enough to be handled quickly and rigid enough for the most strenuous service. They are rubberized on both sides with a double coating of a high grade, long life, rubber compound.

CLIFTON SALVAGE COVERS are built to stand the heaviest abuse and are used by many of the large Protective Departments.

May we send you further particulars?

Clifton Manufacturing Company
Jamaica Plain District :: Boston, Mass.

A FIREMAN'S COURAGE

is never questioned

The boys who were compelled to wear masks during the war were not called cowards.

Is a Fireman's life less important than a Soldiers?

Order the "DONTFEAR" Smoke and Fume Respirator for yourself and men, NOW. Price $5, with airtight goggles $6. Send for descriptive catalogue.

Gibbs-Wahlert Mask Co.
Station G, Box 168, New York, N. Y.

RED ARROW SIREN

Siren with Storm Hood

1. Double-tone, and of greatest carrying power.
2. Ball bearings throughout.
3. Accurately machined and balanced.

30 Days' Free Trial
Write for Circulars

DECOT MACHINE WORKS
Sauk City, Wis.

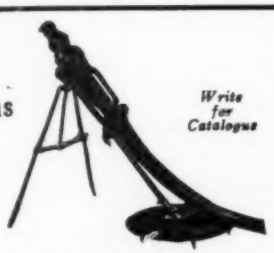
ROTARY PUMPS FIRE HYDRANTS

Waterous

Send for our Complete Catalog
Agents in Principal Cities

WATEROUS COMPANY
St. Paul, Minnesota

Eastman Improved Platforms and Holders



Write for Catalogue

are indispensable where high pressure service is required. With Eastman equipment any size streams can be easily handled by one man.

Eastman Nozzles and Deluge Sets

are designed by engineers who for over thirty years have specialized in equipment for producing fire-fighting streams that are unsurpassed for solidarity, distance and effectiveness.

Samuel Eastman Co.,
Concord, N. H.

PROPOSED IMPROVEMENTS

Mountain View, Kiowa Co., Okla.—City making plans for a soft water supply, including impounding reservoir, dam, pipe line and pumps. Estimated cost $35,000. A. B. Carson, Engr., Madill.

Canute, Washita Co., Okla.—City made preliminary plans for extending 10,300 ft. 4 and 6-inch mains in various streets. Estimated cost $16,000. Engineer not selected.

Gotebo, Kiowa Co., Okla.—At recent election city voted in favor of a $24,000 bond issue for new water supply, including a new well, triplex pump and motor, etc. Long & Co., 1300 Colcord Bldg., Oklahoma City, Engrs.

La Grange, Fayette Co., Tex.—La Grange Light, Ice & Water Co. planning to extend mains and replacing mains in business district with larger pipe. Address the Mayor.

Almont, Lapeer Co., Mich.—Village Council considering the purchase of a piece of fire apparatus for use in rural districts as well as in village.

Waterford, Stanislaus Co., Calif.—Chamber of Commerce considering the purchase of fire apparatus for the city.

Belleville, St. Clair Co., Ill.—Plans are to be made for the purchase of fire apparatus and the erection of fire stations here.

Fire Apparatus Salesman Wanted

Excellent opportunity affords a good responsible fire apparatus salesman in a territory that is very fertile. Address: Box 147, % FIRE ENGINEERING, 225 West 34th St., New York, N. Y.

12-14

Proposals for Fire Apparatus

VILLAGE OF LARCHMONT, NEW YORK

Bids received until January 16, 1928.

Sealed bids will be received by the Board of Trustees of the Village of Larchmont, Westchester County, New York, until 8.30 P. M., January 16th, 1928, at the office of the Board of Trustees, Municipal Building, Larchmont, New York, for furnishing and delivering a Fire Police Patrol Truck complete with necessary and proper equipment therefor in accordance with "Specifications" on file with the Village Clerk, copies of which may be obtained by bidders upon application to Eugene D. Wakeman, Village Clerk, Municipal Building, Larchmont, New York, together with information regarding same.

No bid will be considered unless same complies with said Specifications. The Board of Trustees reserves the right to consider bids until February 3rd, 1928, before awarding the contract and the right is reserved to include or exclude any alternative bid called for and/or to reject any or all bids and/or to accept any bid which the Board of Trustees may deem advantageous to the Village of Larchmont.

By Order of the Board of Trustees, Village of Larchmont.

JOHN R. TULLOCH, Mayor.
EUGENE D. WAKEMAN, Clerk.

Dated, Larchmont, New York, December 5th, 1927.

12-14

Gas Tank Blast Wrecks Big District

(*Continued from page* 1262)

the two nearest companies to the scene of the blast and were the last ones to return to their quarters.

Fortunate Course of Explosion

Terrible as the blast was in its destruction to human life and property, it is considered a miracle by fire department officials that the blast took an upward and outward course toward the Ohio river. Had the blast spent its terrific force in an outward direction through the side of the tank towards Reedsdale Street, hundreds of persons would have been roasted to death on the streets before they had any possible chance of escape and Pittsburgh would have had without a doubt the greatest fire in all its history.

All Help the Injured and Needy

Members of the American Red Cross, the Salvation Army, the Volunteers of America, Boy Scouts and other such organizations, as well as Catholic priests and ministers of the gospel from various Protestant churches, performed a noble work in caring for the injured, suffering and needy as well as looking after the comfort of the firemen and others.

Only Small Fire Results

Little use was required of the large number of fire apparatus called to the scene on the various alarms, the manual force of the fire companies being most needed in searching the ruins for the dead and injured. One 750-gal. pumper was about the only apparatus in actual service, which was used in pumping out water from the basement of the Pittsburgh Clay Pot Company's large plant, adjoining the gas plant on the west which was flooded by the sudden rush of water from the reservoirs of the wrecked gas tanks.

Many Alarms Sent In

Immediately following the blast fourteen different fire boxes in different sections of the North Side were pulled, one of these being three miles distant from the scene of the blast, while twenty-seven boxes were pulled in the downtown business district, South Side, Mount Washington, Duquesne Heights, West End and Allentown sections of the city, one box being pulled in the Allentown section, which is approximately four miles from the scene. In most cases the alarms were sent in by policemen on their beats and others following the terrific concussion and crash of falling glass, who in their excitement thought the explosion to be in their own places of business, homes or in the immediate vicinity.

Chief Smith with his aide was on his way from home to his headquarters in the City-County Building and was crossing the South Tenth Street bridge over the Monongahela river when the terrific blast took place and the great ball of fire shot up into the heavens. Quickly realizing that a terrible explosion had taken place in the lower end of the downtown business district or on the North Side, Chief Smith made all haste with his automobile for his headquarters, arriving just as Station 23 had finished striking on the gong, to which station he proceeded.

Work of Fire Department Commended

Chief Smith has been the recipient of a number of letters from the American Red Cross, business men and other organizations expressing their appreciation of the most prompt, efficient and self-sacrificing work of the firemen under his command, regardless of hours or their own physical comfort, as well as paying a great tribute on the morale and the spirit of the men.

The wrecked gas plant consisted of three gas containers classified as Tanks A, B and C. Tank A, the one which exploded, built in 1899, was 208 feet high to the top of the superstructure surrounding the tank and 223 feet in diameter, and had a capacity of 5,000,000 cubic feet of gas.

Tank B, built in 1912, was 185 feet high and 225 feet in diameter and had a capacity of 6,000,000 cubic feet of gas, while Tank C, the smallest one of the three, built in 1898, was 110 feet high and 96 feet in diameter and had a capacity of 800,000 cubic feet of gas.

The Approximate Loss

The wrecked plant was valued at approximately $1,400,000, while the approximate loss is estimated at $1,300,000. The plant will not be rebuilt on the present site and the Equitable Gas Company, the owners, a subsidiary of the Philadelphia company, has agreed to settle all claims for damages to property, the most needy cases, that of private homes, especially where there are small children, to be given the first attention while settlement with industrial concerns and others will be taken care of later.

The loss to property demolished and damaged by the blast is estimated at over $5,000,000.

CONVENTION DATES

May 7-10, 1928—NATIONAL FIRE PROTECTION ASSOCIATION (International). 32nd Annual Meeting, Atlantic City, N. J. Secretary, Franklin H. Wentworth, 40 Central Street, Boston, Mass.

May 10-11, 1928—ARIZONA STATE FIREMEN'S ASSOCIATION. 5th Annual Convention, Bisbee, Ariz. Secretary, Chief W. J. Nemeck, Douglas, Ariz.

June 19-21, 1928—HUDSON VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 39th Annual Convention, Kingston, N. Y. Secretary, Chief Chris. W. Noll, Poughkeepsie, N. Y., Fire Department.

Sept. 18-19, 1928—IOWA FIREMEN'S ASSOCIATION. 51st Annual Convention, Independence, Ia. Secretary, E. E. Parsons, Marion, Ia.

Oct. 22-24, 1928—KANSAS STATE FIRE CHIEFS and FIREMEN'S ASSOCIATIONS and WOMEN'S AUXILIARY. 13th and 42nd Annual Conventions and 3d Meeting, respectively, Liberal, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan.

Detroit Fireman Reinstated

(*Continued from page* 1264)

Messrs. Charles F. Clippert, A. A. Schantz and George W. Trendle, said:

"It is the view of all the members of this Commission, that we are best qualified, with the assistance of the Chief of Department and the other responsible officers, to judge for ourselves the reliability and the services of the members of the Detroit Fire Department. Habitual drunkers and trouble-makers do not belong in a military organization, which the fire department must be for the preservation of discipline and morale. Lacking jurisdiction in these cases, there is no use in having a Board of Fire Commissioners."

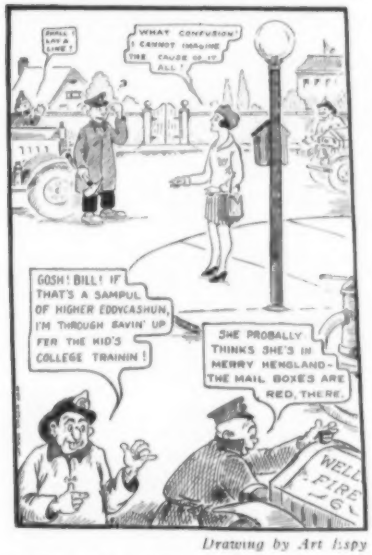
W. J. DALY

Macon, Ga., Has Two-Platoon System—The two-platoon system has again been established in Macon, Ga., with the appointment of eighteen new members to the department. The men had been operating under this plan some time ago but with a change in political factions, the two-platoon system was broken up when the fire force was reduced.

FALSE ALARMS

LOVE LETTERS ATTRACT

Two things are now plain in Wellesley, Mass., the home of the famous girls' college. One is that a certain young lady knows that red boxes are not for the


WHAT CONFUSION! I CANNOT IMAGINE THE CAUSE OF IT ALL!
GOSH! BILL! IF THAT'S A SAMPUL OF HIGHER EDDYCASHUN, I'M THROUGH SAVIN' UP FER THE KID'S COLLEGE TRAININ!
SHE PROBALLY THINKS SHE'S IN MERRY MENGLAND - THE MAIL BOXES ARE RED, THERE.
WELL FIRE CO.

Drawing by Art Espy

mailing of love letters, and the other that some members of the fire department have a decreased opinion of the value of a college education for the fair sex. The student, said to hail from merry England, left the dormitory to mail a letter—possibly to a Harvard man, as she showed a partiality for red. Before the charming miss had a chance to collect her thoughts and return to her rooms, she was surprised to see a circle of firemen attired in rubber coats and armed with fire extinguishers and axes. It was possible that the lady was most attractive, for the story goes that the firemen looked, sighed, shook their heads and returned to the waiting apparatus.

The hand that rocks the steering wheel rules the road.

THE LITTLE THINGS COUNT

Although city officials may state otherwise, there are some men in Chicago who are serving time for criminal acts. Some years ago one of the residents tried to break into a fur shop by prying open a rear window and later it was found that the front door was open all of the time.

This efficient gentleman was released from his penitentiary stay recently and he looked for means to continue his profession. He saw how rapidly some of the lacquer paints dry and so he combined the idea with the drive-it-yourself cars.

He hired a car and drove it into an empty lot where the car received a new coat of bright paint. Once the job was completed, he fearlessly drove the car down one of the main thoroughfares.

The man was soon arrested. Unfortunately for him there is a law that only fire department cars could be painted a brilliant red. And in his haste to drive the car, he forgot to change the numbers and identifying marks on it.

Gazing through the bars of his old ho el the gentleman was heard to remark, "It's the little details that count."

THE FIRE BANDIT

More than half a billion cash
In nineteen twenty six has gone;
Did you hear the mighty crash?
And was the echo short or long?

If you knew that all the gold
And all the silver in the land
Had been drained by robbers bold,
Would you try to stay their hand?

Give the children some protection
In the home and on the street.
If conditions need correction
There's a man you ought to meet.

He is mighty glad to meet you
At your dwelling or concern.
Be assured that he will treat you
As a friend, and in return—

He must ask you to assist him
In the work he has to do.
He will fail if you resist him
But you suffer with him too.

Fire inspector: there to teach you
Human lives are now at stake.
Will the fire department reach you?
Will they get an even break?

FRED D. CAMPBELL,
Engine Company No. 6,
Long Beach, Cal.

THE SAME CLASS

Going home the fire chief noticed a man very much under the weather who was hovering about the fire alarm box. The chief stopped his car and watched for a few moments. It seemed that there would be an alarm turned in accidently any moment.

The chief went over to the man and asked him to move away from the fire alarm box. But the request fell on closed ears.

"Do you know who I am?" roared the chief.

"No, I don't, but if you give me your name and address, I'll take you home."

HE HAD ENOUGH

Inspections at the fire station had not gone so well that morning. The head of the department had not been feeling too well and he vented his spleen on the captain; that officer in turn took it out on the men when they lined up for inspection. He warned them that he expected them to give more attention to their dress.

The men walked up to their quarters, some feeling glum, some joking.

"First thing you know, they'll be having underwear inspection. Then they'll be saying, 'Did you look at your garters, this morning?' "

"Naw, I didn't look at my garters," replied the other who still chafed at the lecture he had received. "I ride in the trolley every morning and I'm sick of looking at garters."

WORTH WHILE TALENT

Two firemen in a suburban fire station were having their usual squabble about preparing the meals. The station was located away from lunch rooms and there was no alternative but to prepare the meals in the house.

"You haven't got enough brains to prepare a meal," answered the one who complained of the poor quality of the food.

"Maybe, I haven't, but I have enough brains to get my meals without cooking them."

PLEASANT WORK

Not all tasks are pleasant. But the rescue squad was called to revive a very pretty girl who was overcome by gas while taking a bath.

The next day the following news item appeared in the local newspaper:

"Miss Evelyn T. Lyda, who won the local bathing beauty contest this year, owes her life to the watchfulness of Joel Colley, elevator boy, and the attentiveness of members of the Rescue Company."

It might be a good thing to fire the elevator boy for the sake of the other tenants.

Not every girl smokes, drinks and necks. The married ones don't have to.

—Drawing by "Art" Espey

Forced Ventilation

Moths are such little harmless things, but as small as they are, they prevented the appearance of 180 firemen in dress uniform at the fire department parade in West Chester, Pa. For three years, the dress coats, caps, flags and other parade paraphanalia had been stored awaiting the next department parade. And when the chest was open—Oh dear, Oh dear. Moths that had dined on a $1,500 spread, completely ruined uniforms that cost $19.75 each. The people of the town hope that the moths who have been dining on such costly fare, will turn down their noses on the humble clothing found in the average residence.

SOUTHWORTH
Quality Fire Apparatus

300 to 750 Gal. Triple Combination Pumpers.

City Service Ladder Trucks, Combination and Chemical Cars.

Recent Sales
Harrison, Maine
300 Gallon Pump

Waterville, Maine
One Tank Combination

Charlestown, N. H.
500 Gallon Pump

SOUTHWORTH MACHINE CO.
Fire Apparatus Division
52 Sagamore Ave., Chelsea, Mass.
Factory: Portland, Maine *Tel. Chelsea-2105*

COREY
Hydrants as manufactured by "Rensselaer" are being used to fight fire in every State of the Union. Made of the very best material and workmanship.

"The Rolls-Royce among Fire Hydrants"

RENSSELAER VALVE CO.,
TROY, N. Y.

JACOB REED'S SONS
Founded 1824 by Jacob Reed

FIREMEN'S UNIFORMS

Thoroughly tailored of especially selected fabrics. Uniforms that look well, wear well and that will give entirely satisfactory service.

Reed's Uniforms are most economical because they represent full value for the amount expended.

Write for catalog and prices.

1424-1426 Chestnut St., Philadelphia, Pa.

LARKIN Shut-off Nozzles

Over 2000 Fire Departments
have 15,000 Larkin Shut-off Nozzles in service. They have a successful record that is not exceeded by any article used in the fire service. Specify and insist upon them in buying new apparatus.

Write for catalog

The LARKIN Mfg. Co.
Dayton, Ohio

High Grade Fire Dept. Supplies of All Kinds

KilSoot
Trade Mark

Why Go Up in the Air Over a Chimney Fire?

Is it worth while to take a chance on a slippery roof when you find a smudge in an otherwise harmless flue? You take no chances with KilSoot—simply toss it on the fire in heater. Zowie! the fire IS OUT. No ladders with questionable footing, no icy steep roof to scale. KILSOOT DOES THE TRICK AT THE BASE OF THE FIRE.

Read This Convincing Letter

"I had occasion last night to use KilSoot and I was wonderfully surprised and highly pleased in its performance. The chimney fire being in a four-story tenement building with stoves entering the chimney on each floor and all tenants burning more or less wood, we found the chimney very foul. Instead of using ladders and putting our men on this pitched roof which was covered with about six inches of snow, I merely detained one company and distributed my men on each floor to watch the operation. I then personally went to the first floor and put two packages of KilSoot in one kitchen range which had a good hot fire and your 'Red Devil' did the rest. Kindly ship by prepaid express to Johnson City Fire Department, six (6) dozen packages same size as used."

(Signed) J. R. ELDRIDGE,
Chief, Johnson City (N. Y.) F. D.

CHIEFS: We want to send you liberal samples of KILSOOT so you may confidently back up our advertising to the public.

We Need Your Approval!
Write For Samples Today

KILSOOT CHEMICAL COMPANY, Inc.
1834 Broadway, New York

We want local Fire Department Distributors

Novo Acid Jars & Holders

of every description, stronger than lead and non-corrosive. Used by departments throughout the country.

Chemical Tanks and Lally Quick Opening and Self-packing Top for Chemical Tanks

Lally Improved Fire Hose Couplings, Fire Extinguishers and Charges, Fire Hose and Fire Department Supplies in General

Send for Complete Catalog

LALLY FIRE APPLIANCE CO.

Wilmington Brass Co., Wilmington, Del.

C. A. M.

The Greatest of All Fire Apparatus Sirens

Unconditionally Guaranteed

See our page ad in last issue

C. A. M. Manufacturing Co.

802 Humboldt Bank Bldg., San Francisco, Cal.

EDDY

Fire Hydrants

Are given preference by so many fire protection and water works men because they know that more than half a century of experience go into their manufacture and they embody valuable and exclusive features.

Write for the Facts

EDDY VALVE CO.

Waterford, N. Y.

James B. Clow & Sons, Chicago Agents

JOHN H. CLAY, INC.

1320 Ridge Ave., Philadelphia, Pa.

Established 1864

Manufacturer Siamese connections, fire hose couplings, plug connections, wrenches, etc.

Every Fire Dept. Officer Should Have

These Three Books—*Packed Full of Practical Information*

Questions and Answers for Battalion and Deputy Chiefs

by Geo. J. Kuss, Former Deputy Chief N. Y. F. D., and Fred Shepperd, B. Sc., M. E., Managing Editor, FIRE ENGINEERING. It contains 210 pages of invaluable instruction for progressive fire department officers, and is indispensable for Captains, Battalion and Deputy Chiefs and other officers studying for promotion.

It contains questions from promotional examinations throughout the country, with answers by Deputy Chief Kuss, (N. Y. F. D.) and Fred. Shepperd.

Price $2.00—postpaid $2.15.

Questions and Answers for Lieutenant and Captain

by George J. Kuss, Former Deputy Chief N. Y. F. D., and Fred Shepperd. A 290-page book of promotional questions and answers for candidates for lieutenants and captains.

It includes questions asked at promotional examinations in practically every city in the country where civil service examinations are held, with answers by Chief Kuss and our Editor.

Price $2.50—postpaid $2.65.

Simplified Fire Department Hydraulics

By FRED SHEPPERD, B. Sc., M. E.

A brand new book describing in a simplified method all of the rules and formulæ required in the solution of fire department promotional examinations questions in hydraulics.

Also contains nearly 200 problems on hydraulics asked in examinations in large departments throughout the country. 170 pages fully illustrated.

Price $2—postpaid $2.15.

Use This Convenient Coupon to Order Your Copies Today.

Book Department
FIRE ENGINEERING
225 West 34th St., N. Y. C.

Please send me the books I have checked, for which I enclose money order for $———.

Questions and Answers for Battalion and Deputy Chiefs ☐
Questions and Answers for Lieutenants and Captains ☐.
Simplified Fire Department Hydraulics ☐.

Name .....Rank .....

Address .....Date .....

Albany, Ga.

The lowest per-capita fire loss, during both 1925 and 1926, of any city in the world!

"Shuredry"

Waterproofed SALVAGE Covers

This remarkable record of the Albany, Ga., Fire Department, under the direction of Fire Chief D. W. Brosnan, makes Chief Brosnan's recommendation of "Shuredry" Waterproofed Salvage Covers particularly important.

"We have used 'SHUREDRY' covers in all our salvage work for a number of years; we have found them durable and they give absolute satisfaction. They are light and easy to handle, which makes for speed, and speed means everything in salvage work.

We carry six standard size covers on each piece of apparatus and through their use we have saved thousands of dollars of water damage, that otherwise could not have been avoided. I have no hesitancy in recommending them."

With kindest regards and best wishes, I am

Your very truly,

(Signed) D. W. BROSNAN,
Chief Fire Dept.

Write for "Shuredry" samples and prices.

FULTON BAG & COTTON MILLS

Atlanta Dallas Brooklyn St. Louis
Minneapolis New Orleans

ALUMINUM

Fire Alarm Boxes

We were first to successfully use aluminum fire alarm cabinets—*now conceded everywhere to be the best.* They can not rust or corrode, are strong yet light in weight.

Adequate fire protection demands reliable fire alarm signal equipment. H-S fire alarm boxes can be absolutely depended upon to operate perfectly every time.

Made by specialists in the design and manufacture of fire alarm signal equipment. Write for bulletins.

HARRINGTON-SEABERG CORP.,
DEPT. G., MOLINE, ILLINOIS
Manufacturers
Traffic Signal Equipment Fire Alarm and Police Signal Equipment
Complete Signalling Equipment for Municipalities. Complete Installations.

Quick-Acting Reliable

Anderson-Hale Improved

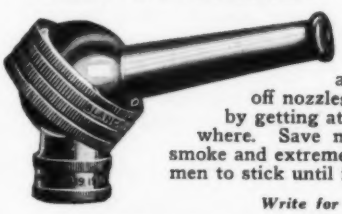
FIRE STATION DOOR OPENERS

Over 1,300 sets of Anderson-Hale Fire Station Door Openers are in successful use. They provide simple, durable, quick-acting doors that open inward. No obstruction to sidewalk. Attractive in appearance, cannot sag, closes tight, excludes cold, gives clear opening. Opens from driver's seat or from floor. Many repeat orders from users.

Write for complete information.

The Anderson Coupling & Fire Supply Co.
Mfrs. Motor Fire Equipment and Fire Supplies
Kansas City, Kansas

BLANCHARD "TIPS"



attached to shut-off nozzles save water loss, by getting at fire at once anywhere. Save men from flames, smoke and extreme exertion. Allow men to stick until fire is out.

Write for circular

ARTHUR H. BLANCHARD
New England Fire Hose Agent:
Boston Woven Hose & Rubber Company
25 Hampshire Street Cambridge, Mass.

PROTECTION A.D.T. SERVICES

THERE is an ADT Fire Protection service for every type of structure, namely:

Manual Fire Alarm
Automatic Fire Alarm
Automatic Sprinkler Supervision

All of these services are operated thru ADT Central Stations serving 235 communities in the United States.

The thousands of subscribers are a tribute to the efficiency and effectiveness of ADT supervision.

Write for more information.

Controlled Companies

American District Telegraph Company
183 Varick Street, New York

BRAXMAR
BADGES

have been the recognized standard for fire departments for almost 50 years. Used everywhere. More than 900 designs. Send for illustrated catalog and prices.

C. G. BRAXMAR CO.
242 W. 55th St., N. Y. C.

Since 1868 the products of Union Water Meter Company have been regarded generally as the standard of perfection. Constructed on sound, scientific principles, improved with the advance of time, the combined experience of nearly sixty years stands behind these manufactured specialties.

Worcester Fire Alarm Signals are built to give an alarm that is heard above the din of traffic, yet with a tone that is not piercing or unpleasant. Carries great distances. Four sizes.

Ask for catalog R-51.

Union Water Meter Co.
Worcester, Mass.

New York:
50 Church St.
Philadelphia:
411 Bulletin Bldg.

WORCESTER
ALARM SIGNALS

Something entirely different
BUCKEYE
ROTO-RAYS!

A Signal that Commands Attention

BUCKEYE Roto-Rays make it possible for traffic officers, motorists and pedestrians to instantly identify the Fire Department after dark—the time that danger lurks in every shadow and at every street intersection.

The shriek of a whistle or the clang of a bell, first puts the public on the alert. But to distinguish the apparatus or officer's car from other illuminated objects, both moving and stationary, is a difficult task.

BUCKEYE ROTO-RAYS SOLVE THE PROBLEM.

These three powerful, revolving red signal lights, standing out in plain relief against the confusion of other lights upon the streets, enable every one to definitely establish the exact location of the apparatus, and in which direction it is proceeding.

It is another guaranteed Buckeye Product to be sold for Fire Department Service Exclusively.

Prices and Full Particulars upon application.

Buckeye Iron & Brass Works Dayton, Ohio

BUCKEYE
WARNING SIGNALS THAT WARN

MATHEWS
(Reg. U. S. Pat. Off.)
FIRE HYDRANTS
for
DOMESTIC
and
HIGH PRESSURE
Service

NOTE—

The positive waste value.

All operating threads are dry, being above the stuffing-box.

No toggles, no small, quick-wearing parts.

All moving parts are bronze or bronze-bushed.

The outside casing permits replacing a two-way standpipe with a steamer and two-way standpipe without digging up the ground.

An easily installed
EXTENSION SECTION
readily adapts them to new grades.

VALVES and BOXES
CAST IRON PIPE
(Sand-Cast or "Sand-Spun")
FITTINGS

R. D. WOOD & CO., Phila., Pa.

Mail the Coupon below and Get Complete Information!

Fire Protection Equipment And Supplies

1 Acid Siphons.
2 Adaptors for Changing Hydrant Threads.
3 Acid Jars and Rings.
4 Aerial Ladders, Detachable.
5 Aerial Trucks.
6 Alarms, Siren, Electric.
7 Alarm Systems, Industrial.
8 Alarm Systems, Municipal Telegraphic.
9 Alarms, Theromostatic.
10 Asbestos, Clothing
11 Badges, Insignias, Buttons, etc.
12 Banners, Trumpets, etc.
13 Battery Jars.
14 Battery Zincs for Fire Alarm Batteries.
15 Bells, Fire Alarm, Municipal.
16 Body Equipments.
17 Boxes, Gongs, Reels, Registers, Fire Alarm.
18 Brakes, Air.
19 Brake Linings.
20 Brooms, Fire.
21 Building Materials, Fire Retardant.
22 Caps, Firemen's.
23 Chains, Non-Skid, Fire Apparatus.
24 Chassis for Fire Apparatus.
25 Chemical Engines and Tanks.
26 Chimney Cleaning Compounds.
27 City Service Trucks.
28 Coats & Suits, Firemen's Quick Hitch.
29 Combination Chemical & Hose Cars.
30 Cutting & Welding Equipment, Blow Torch.
31 Cutting & Welding Equipment, Electric.
32 Deluge Sets.
33 Door Openers, Fire Station, Automatic.
34 Extinguishers, Fire, Soda & Acid.
35 Extinguishers, Fire, Tetrachloride.
36 Extinguishers, Fire, Foam.
37 Extinguishers for Chimney Fires.
38 Fire Boat Nozzle Equipment.
39 Fire Department Supplies, General.
41 Fire Exit Devices, Door Opening.
42 Fire Alarm Posts.
43 Fire Escapes, Portable.
44 Fire Escapes, Rigid.
45 First Aid Equipment.
46 Flare Lights.
47 Flashlights, Hand.
48 Foam Liquid for Extinguishers.
49 Gas Masks and Respirators.
50 Gas & Smoke Helmets.
51 Gasoline & Oil Handling Equipment.
52 Goggles, Firemen's.
53 Helmets, Metal, etc.
54 Hose Carts, Reels & Racks.

This page is here to make it *convenient* for you to get complete specifications and prices from *reliable* manufacturers of equipment needed for your department. It is *your* page to use freely without any obligation.

To get the information you want, just mail in the coupon below with your name and address and numbers that indicate the equipment listed below on which you would like descriptive literature.

We will then notify reliable manufacturers of your interest in such equipment and request that they send you complete information. They will gladly do this and it will be a pleasure for us to help you in this way. No charge whatever! Help yourself!

For Information on Any Equipment Not Listed, Write on This Page or Use Separate Sheet.

55 Hose Clamps.
56 Hose Fire.
57 Hose, Chemical.
58 Hose Holders.
59 Hose Jackets.
60 Hose Standardization Tools.
61 Hydrant Draining Pumps.
62 Hydrants, Fire.
63 Jacks for Fire Trucks.
64 Jacks, Shoring & Prying.
65 Ladders, Fire.
66 Lightning Arresters.
67 Motorcycles, Fire Dept. Equipped.
68 Nets, Life.
69 Nozzles, Pipes & Misc. Brass Goods.
70 Packings, Pumps.
71 Pads, Pole Hole.
72 Paints, Fire Resisting.
73 Primming Ether, Motor.
74 Pumping Cars, Standard.
75 Pumping Cars, Foam.
76 Pumps, Fire Apparatus.
77 Pumps, Fire Service, Stationary.
78 Pumps, Portable, for Fire Protection.
79 Record Books, Fire.
80 Relief Valves.
81 Reviving Apparatus, Oxygen.
82 Rubber Clothing.
83 Searchlights.
84 Shingles, Fire Retardant.
85 Shirts, Firemen's Special.
86 Sirens, Apparatus & Chiefs' Cars.
87 Sliding Poles.
88 Soda & Acid Chemicals.
89 Spark Plugs, Fire Apparatus & Motorcycles.
90 Squad and other Auxiliary Cars.
91 Sprinkler Head Shut-Offs.
92 Sprinkler Supervisory Service.
93 Sprinkler Systems, Automatic, Foam.
94 Sprinkler Systems, Automatic Water.
95 Starters, Fire Apparatus, Automatic, Air.
96 Steam Fire Engines.
97 Tarpaulins & Fire Blankets.
98 Tetrachloride Chemicals.
99 Thawing Equipment, Hydrant.
100 Tires, Fire Apparatus, Pneumatic, Solid, Cushion and Non-Skid.
101 Tractors.
102 Traffic Clearing Systems.
103 Triple Combination Pumping Cars.
104 Uniforms.
105 Water Towers.
106 Wheels, Cushion.
107 Whistles, Fire Alarm, Compressed Air.
108 Whistles, Fire Alarm, Steam.
109 Whistles, Fire Apparatus.
110 Wrecking Trucks.

TEAR OFF HERE

FIRE ENGINEERING

225 West 34th St., New York City.

As a fire protection official I should like to have descriptive literature and complete information mailed to me, without cost or obligation, on the equipment indicated by the following numbers:

Nos.....

Nos.....

Nos.....

Date.....

Name.....

Position.....

Street.....

City and State.....

.....

.....12-14

"On the apparatus which we operate, there are at the present time two Firestone Tires 8 years old, four 3 years and two 6 years old. All are still in fine shape. You may be sure that with results like this from Firestone Tires, we will use nothing else."

Elmer L. Rhoades,
Fire Chief, Kearney, Neb.

Gum-Dipped

TIRES for FIRE FIGHTERS

Gum-Dipped Tires are insulated and protected for high speed fire apparatus. Firestone dips the cords of the carcass in a rubber solution, saturating every fiber of every cord with rubber. This gives the tire extra strength and stamina and makes your equipment more dependable in any emergency.

The scientifically designed Firestone tread has safety angles and wedges which supply powerful traction and minimize skidding even on bad streets and roads. In your locality there is a Firestone equipped service station where you can obtain the advantages of these better tires, along with helpful, expert service. See your local Firestone dealer.

MOST MILES PER DOLLAR

Firestone

GUM-DIPPED TIRES

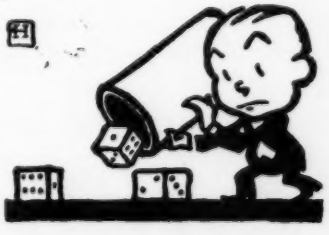
AMERICANS SHOULD PRODUCE THEIR OWN RUBBER Harvey S. Firestone

ADVERTISING INDEX

Advertising Pays — in Fire Engineering

	PAGE
Ahrens-Fox Fire Engine Co.	1245
American District Telegraph Co.	1293
American Fomon Company	1270-1271
American La France Fire Eng. Co.	*Back Cover*
American Steam Pump Co.	1283
Anderson Coupling & Fire Supply Co.	1293
Automatic Power Door Mfg. Co., Inc.	1277
Bi-Lateral Fire Hose Co.	1284
Blanchard, Arthur	1293
Braxmar Co., C. G.	1294
Buckeye Iron & Brass Works	1294
Buffalo Fire Appliance Corp.	1280
C. A. M. Mfg. Co.	1292
Clay, Inc., John H.	1292
Clifton Mfg. Co.	1288
Combination Ladder Co.	1280
Darling Valve & Mfg. Co.	1246-1247
Decot Machine Works	1288
Eastman Co., Samuel	1288
Eddy Valve Co.	1292
Erick Electric Siren Co.	1284
Eureka Fire Hose Mfg. Co.	*Front Cover*
Everson-Ross Co.	1288
Fabric Fire Hose Co.	*Inside Back Cover*
Firestone Tire & Rubber Co.	1296
Foamite-Childs Corp.	1249
Fulton Bag and Cotton Mills	1293
Gamewell Co.	1250
Gibbs-Wahlert Mask Co.	1288
Hahn Motor Truck Co.	1284
Hale Fire Pump Co.	1284
Harrington-Seaberg Corp.	1293
Henderson-Ames Co.	1284
Hewitt, Gutta Percha Co.	1275
Holtzer Cabot Elec. Co.	1287
Information for Buyers	**1295**
International Harvester Co.	1298
Kilsoot Chemical Co.	1291
Lally Fire Appliance Co.	1292
Larkin Mfg. Co.	1291
Mack Trucks, Inc.	1270-1271
Maxim Motor Co.	1288
Mine Safety Appliance Co.	1248
Morley Signal Engineering, Inc.	1279
Morse & Sons, Inc., Andrew J.	1284
National Standard Threadless Coupling Corp.	1287
Nott Co., W. S.	*Inside Front Cover*
Pirsch & Cons Co., Peter	1284
Reeds Sons, Jacob	1291
Rensselaer Valve Co.	1291
Seagrave Corp.	1243
Signal Shirt Co.	1283
Southworth Machine Co.	1291
Sterling Siren Fire Alarm Co.	1279
Union Water Meter Co.	1294
Waterous Company	1288
Waukesha Motor Co.	1288
Wood & Co., R. D.	1294
Woodhouse Mfg. Co.	1273

You Can't Lose When You Buy From These Manufacturers



The advertisers you find listed above are generally recognized as the leading manufacturers in their respective fields.

Whenever you are considering the purchase of new equipment for your department, you'll find it will pay to write them about your requirements.

They are in position to be of real service to you, and they are always ready to cooperate with you in every way possible—if you will only let them.

Before you place orders for new equipment, be sure you have complete information and prices from all of them. You and your department will benefit by it

The Publishers

Fire Protection
by Way of International Trucks

CITIES and towns in every part of the country, from New York city down to the hustling village, have turned to International Harvester for trucks and equipment to safeguard life and property from the fire hazard.

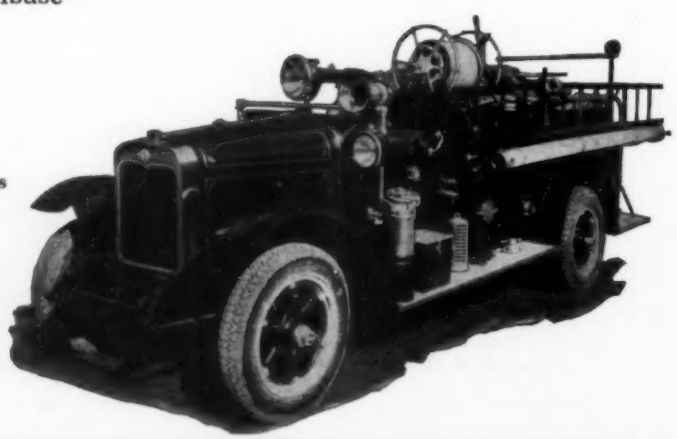
They make this choice for the soundest, most practical reasons. International truck chassis are divided in a wide range for fire protection needs. There are several Speed Truck models, both 4 and 6-cylinder, and Heavy-Duty units to 5 tons, wheelbase lengths from 117 to 164 inches. The trucks are fitted with every conceivable variety of fire-fighting equipment to meet every community's needs.

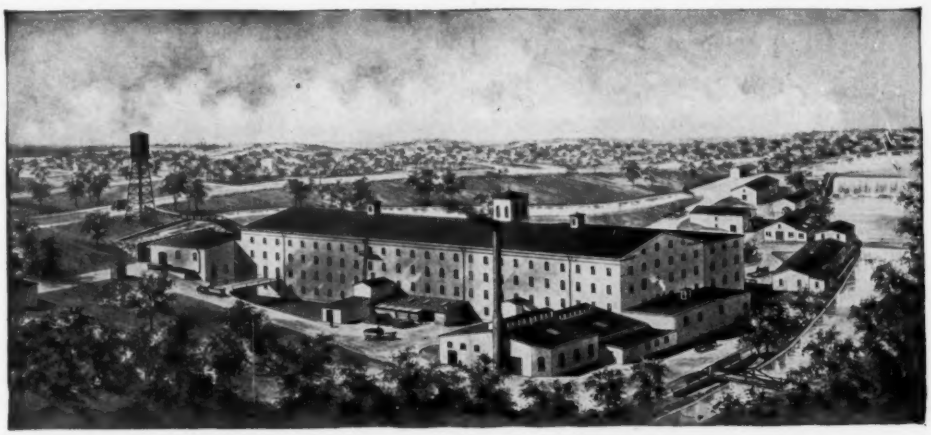
And Service is a big element in this popularity. We have 142 Company-owned branches in the United States and dealer facilities in easy reach of any town.

Put your local proposition up to the nearest branch or dealer. Write us for full particulars.

INTERNATIONAL HARVESTER COMPANY
of AMERICA
606 So. Michigan Ave. *(Incorporated)* Chicago, Illinois

INTERNATIONAL



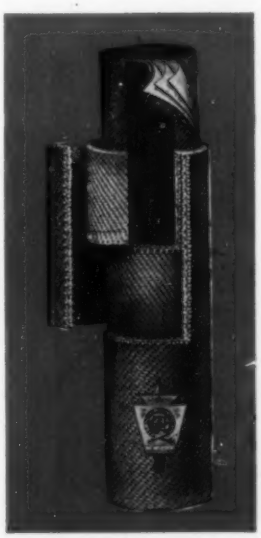


Where Fabric Fire Hose is made—Plant at Sandy Hook, Conn.

Why Buy Fabric Hose?

(Every Fire Official Should Read This)

BECAUSE we are so proud of the secrets used in its manufacture that we tell you all about them. Because our illustrated booklet "Wax and Para Gum Treated Fire Hose — How It is Made" explains many unique and really important points of advantage. Because it is a hose made to stand up under conditions that would make ordinary hose unserviceable in a fraction the time. Because it has a Loose inner tube, with its many advantages. Because it is absolutely impervious to moisture and will not mildew or rot. Because, in short, Fabric Fire Hose is light, pliable, compact, has great strength, is free from friction, kinking or twisting, and, Because it is the cheapest in the long run.



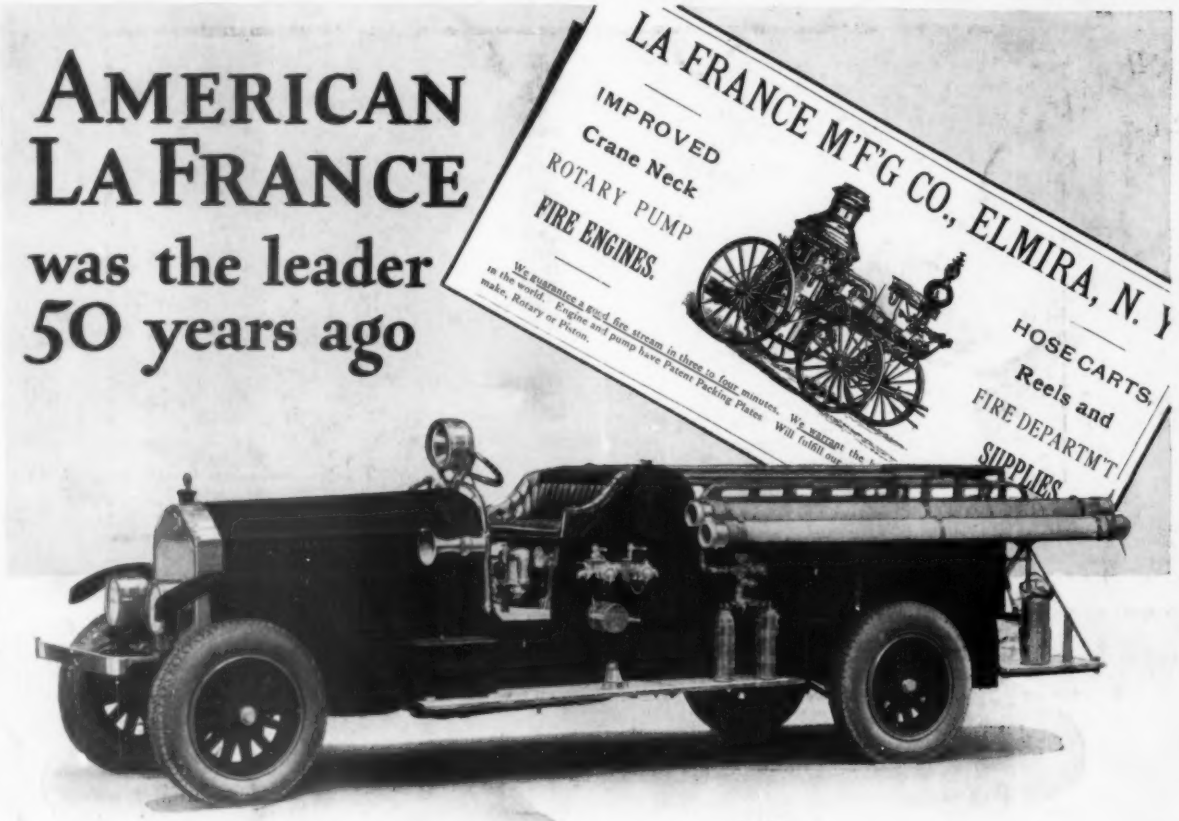
Fabric Fire Hose Co.

9-15 Park Place, New York, N. Y.

124-126 W. Lake Street, Chicago

Atlanta	Dallas	Minneapolis	Los Angeles
Boston	Binghamton	Portland	Newark
Columbus	Baltimore	San Francisco	Pittsburgh

AMERICAN LA FRANCE
was the leader 50 years ago


LA FRANCE M'F'G CO., ELMIRA, N. Y
IMPROVED
Crane Neck
ROTARY PUMP
FIRE ENGINES.
We guarantee a good fire stream in three to four minutes. We warrant the
in the world. Engine and pump have Patent Packing Plates. Will fulfill our
make, Rotary or Piston.
HOSE CARTS,
Reels and
FIRE DEPARTM'T
SUPPLIES

. . . and is today

50 years ago the above American-La France advertisement appeared in Fire Engineering—but American-La France had been manufacturing fire fighting equipment for more than 30 years before that time.

The stern test of unnumbered fires over these 80 years of constant service have proved the leadership, reliability and dependability of American-La France Fire Fighting Apparatus.

Even half a century ago Fire Chiefs placed their faith in American-La France apparatus. Then, as now, their confidence in the principle of the American-La France rotary gear pump was well established.

Since that time methods and machines have been constantly improved. Over 80 years of successful manufacturing and dependable service has added to the experience which justifies the present prestige of American-La France Fire Apparatus.

A post card will bring the latest information on the present American-La France models.

AMERICAN-LA FRANCE & FOAMITE CORPORATION

Elmira, New York

PRINTED BY THE WILLIAMS PRESS, ALBANY, N. Y.